

From isolation to *constellation*: Narrative focalisation in current technology disclosures

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Abstract

In this article, I explore focalisation in the mediated account of university technology disclosures, a relatively recent digital genre for science and technology commercialisation and institutional promotion through online dissemination and outreach. Born in academic settings, this genre is still in-the-making and highly susceptible to discursive hybridity. My study draws on an eclectic framework that combines the principles of Netnography with Narrative Inquiry, (Critical) Genre and Multimodal Analysis, and Positioning Theory to examine the teller's role and the telling practices contained in two types of interrelated documents published by the Universidad Politécnica de Madrid on its webpage: the institution's current *Technologies Portfolio* and a series of salient in-house innovative technologies/projects rendered in comic-book format, both in their English version.

The scrutiny of the 134 samples of the *Portfolio* and of the 12 instances of comic-books reveals how the hybridity generated by digital affordances influences narrative and, along with it, promotional strategies. I lay special emphasis on the concept of 'narrative focalisation' and attempt to answer the famous Goffmanian question "Who is speaking?", making the point that genre networking is a way of telling and ultimately of institutional branding.

Keywords: Digital dissemination and outreach genres, technology disclosure, hybridity, interdiscursivity, science comics

Resumen

Del formato aislado a la constelación de géneros: focalización narrativa en la actual divulgación de tecnologías

En este artículo exploro la focalización narrativa en la divulgación de tecnologías universitarias, un género digital relativamente reciente y orientado a la comercialización de la ciencia y la tecnología y la promoción institucional mediante su difusión en línea. Surgido en el entorno académico, este género se encuentra aún en proceso de consolidación y parece muy propenso a la hibridación discursiva. Mi estudio se basa en un marco teórico ecléctico que combina los principios de la Netnografía con la Investigación Narrativa, los Análisis (Críticos) del Género y de la Multimodalidad y la Teoría del Posicionamiento para examinar el papel del narrador y las prácticas narrativas contenidas en dos tipos de documentos interrelacionados y publicados por la Universidad Politécnica de Madrid en su página *web*: el actual *Catálogo de Tecnologías* de la institución y un conjunto destacado de tecnologías y proyectos innovadores relatados en formato de cómic, ambos en su versión en lengua inglesa.

El análisis de las 134 muestras del *Catálogo* y de los 12 ejemplares de cómic revela cómo la hibridación generada por las prestaciones digitales influye sobre la narrativa y las estrategias promocionales. Subrayo de manera especial el concepto de “focalización narrativa” e intento responder a la célebre pregunta goffmaniana “¿Quién habla?”. Asimismo, planteo considerar la constelación de géneros como un modo narrativo y, en última instancia, como herramienta de mercadotecnia institucional.

Palabras clave: Géneros de diseminación y divulgación digitales, divulgación de tecnologías, hibridación, interdiscursividad, cómic científico

1. Current ‘sci-tech’ narratives: What is new?

It is no news that narrative is all-pervasive across contexts, disciplines, and fields of activity. Toolan (2001: viii) concluded that “narratives are everywhere” and scholars such as Fisher (1984) and Howard (1994) have respectively labelled humankind under the genera *Homo narrans* and *Homo fabulans*, since most conceptualisations of narrative define it as a major cognitive tool and key element in social interaction, and thus as inherent to our nature. From a cognitive standpoint, narrative is a representation of experience (Bruner, 1986; Fludernik, 1996), a natural form of thinking (Bruner, 1986), a mode of knowing (Czarniawska, 2011), a theory builder (Ochs et al., 2005), a semiotic category or construct (Fairclough & Fairclough, 2012), a means for problem-solving (Hoey, 2001; Martin & Rose, 2003), and an act of macroevaluation (Linde, 1993; Cortazzi & Jin, 2003). Under a social lens, it is considered “a slice of life” (Elliott, 2009) that is “enmeshed in social action” (McIntyre, 1990) and constitutes a reliable instrument for communal

memory (Connerton, 1989). This dual facet astride the public and the private is aptly encapsulated by Hardy (1968, p. 5): “(...) we dream, daydream, remember, anticipate, hope, despair, believe, doubt, plan, revise, criticise, construct, gossip, learn, hate and love by narrative”.

Narrative is certainly “transactive” (Czarniawska, 2011: 1), as well as transcultural and transhistorical (in both a national and disciplinary sense). We could also qualify it as “transgeneric” because it appears in almost every genre under different guises. Not in vain have genres been equated with “narrative templates” (Elliott, 2009, p. 44) culturally shared as frameworks for structuring events and established through repetition. Like genres, narrative¹ is a dynamic discourse process simultaneously strategic (even persuasive), context-bound and interdependent with other texts and, as explained above, capable of performing archival and evaluative functions. The latter bear special interest because of their threefold course of action, shown in Figure 1: an evaluation “through” the narrative (i.e., the selection of content and choices regarding the circumstances of the telling), an evaluation “of” it (that is, the explicit appraisal of the account by the teller, a character in the story or the audience), mainly to state its point and importance or to judge its effectiveness (a typical instance is Swales’ 1990 CARS model, the cross-disciplinary move scheme that serves to carve a scientific niche in research articles), and an internal evaluation (“in-narrative”) that implicitly reveals stance by means of cultural, discursive, rhetorical, lexico-syntactic and phonological devices.

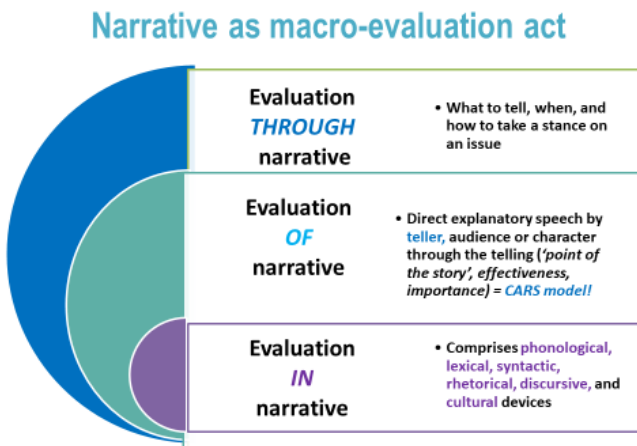


Figure 1. Threefold course of action of narrative as an act of macro-evaluation (inspired by Linde, 1993 and Cortazzi & Jin, 2003)

This article is concerned with the current trends in the narrative of science and technology, and particularly in the university technology disclosure (hereafter TD), a relatively recent digital genre aimed at the commercialisation of university-produced discoveries and inventions and at institutional promotion through their online dissemination and outreach. I will analyse the samples created by my own institution, the Universidad Politécnica de Madrid (UPM for short), which are unusually versatile and appear compiled in the university's *Portfolio of Technologies*, as well as a dozen self-produced comic books presenting prominent in-house projects due to their innovation or social impact. Still in the making as an established genre, the TD, also known as 'technology description', 'university invention', 'innovation', 'technology solution', 'university technology', 'invention disclosure', or 'marketing abstract', comes across as highly susceptible to discursive hybridity (Bhatia, 2002, 2012), a fact that influences narrative and promotional strategies and along with them institutional branding. My central interest is the phenomenon of narrative "focalisation" (Bal, 1991, 2009; Genette, 1990; Herman, 2009, 2010; Hortskotte & Pedri, 2011; Porter Abbott, 2011) across the three evaluative planes of narrative (i.e. 'through', 'of', 'in'); in other words, centring on the perspective from which the research story is told. I intend, in addition, to answer Goffman's (1981) well-known question of "Who is speaking?", which should rather be interpreted metaphorically as "Who perceives/sees?", because focalisation goes beyond the act of narrating and subsumes other roles (for example, several others from those devised by Goffman, 1981), as I will explain later on. In pursuit of these insights, I draw on a blended framework that combines the principles of Narrative Inquiry (Czarniawska, 2011; Giménez, 2010; Kohler Riessman, 2008, among others) with Netnography (Kozinets, 2015), Positioning Theory (Harré & van Langenhove, 1999) and (Critical) Genre and Multimodal Analyses (Bhatia, 2002, 2012; Machin & Mayr, 2012) to examine the teller's role and the telling practices employed. In the methods section I will justify my motivation for resorting to each of these research strands.

The TD genre suitably embodies what French historian of science and epistemologist Gaston Bachelard (1970) terms "phenomenotechnique". This neologism captures the inextricable relationship between science and technology, that is, between resources and procedures and the 'praxis' or implementation of their outcome (Bachelard, 1981). However, the narratives of science and technology have not always matched: if we compare a patent

document with its research article counterpart, for example, we will find little or no procedures, background information and references in the former, and hardly any visuals-based technical descriptions - even of a sketchy nature - or legal vindications in the latter. Owing to their different primary purposes and audiences, both genres have coexisted almost in isolation over decades, telling a sort of chicken-and-egg story (What was first, the scientific discovery or the invention?) and so has the TD, especially before the digital era, when it was an occluded genre discreetly marketised by the university offices of technology transfer (OTTs) or Venture Centres and invariably adopted the format of the scientific abstract, but couched in a more or less overtly promotional discourse.

The narratives of science and of the Enlightenment, with their respective praises of pure knowledge and continual liberty and progress are, according to Lyotard (1984), the two great “master narratives” (in his own coined terms, *grand récit* and ‘metanarrative’) of Modernity. By “master narrative” we must understand a socially-recognised “cultural script” or “dominant discourse” (Hammack, 2009, p. 51). In the narrative of science, which could be regarded as a macrogenre for it agglutinates a plethora of genres of diverse kinds, such a script has been the rhetorical progression of the research article, known as the IMRD sequence or scheme (i.e. Introduction, Method, Results, Discussion; Swales, 1990), iconic of real-life action. In those TDs that keep the scientific abstract format, the structure persists, although the inclusion, order, and extension of certain rhetorical moves may be modified at convenience. The methods section, the most ‘narrative’ of all, is often obliterated or just mentioned in passing, as the main purpose is the description of the technology’s objective and its novelty (two rhetorical steps typical of introductions) and the enumeration of its advantages and applications (habitual components of the discussion section). Whereas the research article (and alongside it the abstract in whatever format) is “retrospective”, oriented towards the procedural narration of a research process conducted in the past, the TD is “prospective” and concentrates on the outcome or product, on its future applications and social benefits.

During my research stay at the University of Michigan in 2011, where I went to study university TDs under the supervision of John M. Swales, especially the ones produced by the University Research Corridor², two striking findings were the little prominence given to researchers and the uniformity of TD formats across institutions. Some universities outside the UCR, such as the University of Florida (Figure 4), gave no credit to inventors and thus

its TDs were quasi-anonymous texts, except for the names of OTT mediators in contact electronic addresses. Institutional presence, by contrast, was conspicuous thanks to institutional logos and formulaic language opening the description section of the texts (e.g. “University of Michigan researchers have created...”, “University of Florida researchers have developed...”). Unfailingly, TDs were then abstract-shaped, either conventionally (as one or two compact paragraphs) or in a structured fashion (i.e., with headings, a trend common in Psychology and the biomedical sciences). Figures 2 and 3 illustrate both variants with average UCR samples from Wayne State University and the University of Michigan at that time: in the Wayne State TD (as in the TDs from the third UCR member, Michigan State University), the inventor’s name is made visible, but not in the one from the University of Michigan, although researchers were unobtrusively mentioned on a second page for filing data, which indicated their departments and divisions.

Method For Treating and/or Imaging Breast Cancer Using Radioactive Iodine

Case ID:
96-365

Description:

This invention involves treating a breast cancer patient by the administration of a radioisotope of iodine in a dosage of between 5 and 50 millicuries over the course of a day. The therapeutic composition is designed for mammary tissue uptake and includes an inorganic radioactive iodide salt (e.g., alkali metal, alkali earth or transition metal iodides) and a parenterally injectible carrier therefor. Adjuvants are optionally added to increase uptake by mammary tissue or inhibit uptake by the thyroid gland. The composition may also have utility as a radiomaging dye. A U.S. patent application has been filed.

Direct Link:

<http://wayne.technologypublisher.com/technology/5211>

Category(s):

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Figure 2. Technology in compact abstract format from Wayne State University (2011 sample)

Title: Method of Improving Fiber Composite Ductility
 Case Number: 2824

Abstract
 UM File # 2824 Download PDF

Background
 Fiber reinforced brittle matrix composites are widely used in aerospace, automobile, and construction industries. Fiber reinforced cementitious composites (FRC), in particular, have drawn great attention in the past decade due to their enormous potential in civil engineering applications.

Technology Description
 University of Michigan researchers have created a new method for increasing the tensile strain capacity of FRCs. The purposeful addition of crack-initiating voids in the form of low tensile strength particulates, particulates having low matrix interaction, or gas bubbles formed by chemical reaction, in a size range of 0.5 mm to about 5 mm, and preferably of a size commensurate with or larger than naturally occurring crack-initiating gaseous voids, to fiber-reinforced strain hardening cementitious composites generates controlled and uniform cracking which increases strain hardening behavior in conventionally dense cementitious compositions.

Applications
 • Creation of Fiber reinforced cementitious composites

Advantages
 • Increased tensile strength in the material

Categories
 Technology Category/General Engineering
 Physical Science/Materials/Composites

Keywords
 concrete, composite, building

Licensing Contact
 Jim Deane PHD, 734-764-9429
 jdeane@umich.edu



Figure 3. Technology in structured abstract format from the University of Michigan (2011 sample)

Bioactive Glass Coated Silicone Drug Depot

Background
 It is desirable to achieve predictable, controlled delivery of selected drug or bioactive agents into specific sites in the body. This is presently accomplished by incorporation into the patient of a drug "depot" which contains the biologically active agent that is released over time into the patient. Such depot systems are currently constructed of silicone rubbers which suffer from the disadvantage that fibrous scar tissue capsules tend to form around devices constructed of this material. The scar tissue hinders the release and availability of the bioactive agent from the system.

Invention
 University of Florida researchers have developed an improved implantable pharmaceutical depot for the prolonged release of biologically active substances constructed of silicone which are not subject to the formation of scar tissue capsules.

Applications
 Methods and compositions for the preparation of biologically compatible silicone pharmaceutical depot systems which enable the prompt and efficient delivery of the biologically active substance from the depot.

Advantages

- Disables the formation of scar tissue around drug depot systems
- Ensures predictable rates of delivery of pharmaceutical agents from depot systems
- Avoids complications associated with implantation of conventional drug depot systems



To discuss this technology with a licensing officer call (352)392-8929 or email jmuir@ufl.edu and ask about record UF ID: 1776

Figure 4. Technology in structured abstract format from the University of Florida (2011 sample)

What has changed, if anything, after ten years? What is new? A recent visit to the URC website (November 2022) has evinced the absence of accessible online technology catalogues, which have been substituted with mission statements for specific research areas, press releases and 'science news', success stories of entrepreneurship and partnership, tweets, and links to YouTube videos on research processes and researchers' profiles, which are

now more prominent. Their resumés (i.e., subjects taught, educational background, publications, awards and grants) can be called up within a network organised into faculties, schools and colleges' research hubs, each with its associate deans and leading to different departments. Inside these, the Internet surfer is directed to different professors with hyperlinks to their curricula vitae. The College of Engineering of the University of Michigan, for one, offers links to diverse engineering centres, each with its own dean in charge and research collaborators. There is no trace of the old Venture Centre and Office of Technology Transfer, which makes external researchers seeking collaboration or potential investors contact faculty deans and researcher candidates among the staff to 'commission' tailor-made research matching their scientific interests. There is a portfolio of available partnerships but 'hidden' under the successive buttons of 'Innovation partnerships' and 'Investors', with a clickable hyperlink (not a button) at the bottom of the 'Investors' webpage. Access is therefore extremely purposeful and restricted. Once in the portfolio, technologies are sorted out according to very broad scientific areas (Life science, Physical Science, and Software & copyright) and retrievable by name, date (oldest to newest and vice versa, as shown in Examples 1 and 2) and the status of being acquired or not. Descriptions are exceedingly lean, oftentimes consisting in a noun phrase or a very brief sentence.

(1) **ExoDynamics**

Life science

Smart, active spinal orthoses that provides support and mobility to users.

(2) **Gene-to-Be, LLC**

Life science

Gene-editing platform technology focused on correcting mutations to cure common and rare genetic diseases

(2022)

Michigan State University has preserved its Office of Research and Innovation and its Innovation Centre with a unit of 'Technology Transfer and Commercialisation', but no technology catalogues are in sight. Instead there are news reports concerning concrete topics (e.g., strategic plans for interdisciplinary forums and announcements of events, such as interviews with eminent researchers speaking about their latest achievements). Last, under the consecutive buttons 'Research and discovery' and 'Key research areas spotlight', Wayne State University follows the same trend as the

University of Michigan and displays a list of broadly interdisciplinary and potentially conflating fields of research such as ‘cancer’, ‘water’, ‘environmental’, ‘metabolic’, ‘imaging’ or ‘fundamental sciences’. In view of these changes, it seems that we are witnessing a growing trend on social media that may even disguise the expected scientific-technical look of university webpages and websites devoted to technologies, a rise of inter- and transdisciplinary research areas, and perhaps a regression to the occlusion of the TD genre, which is increasingly less accessible (maybe out of over-protective zeal in an ever more competitive higher education panorama?) in some top-rank US universities.

1.1 *Constellating* is a way of telling

Indeed, the novelty in the communication of science and technology is connectivity, brought about by digital affordances and causing in turn semiotic hybridity (the use of multimodality and an interinfluence of genres and discourses that might have belonged to distant realms in the past), together with a greater visibility (Luzón, 2018; Lorés & Diani, 2021) and immediacy in communication, and an increased permeability and transiency of communities of practice. To these features we should add the recontextualisation of information and communicative purposes, tensions between situatedness and multilocation and between opinionated and factual interactions, and the proliferation of hyperlinks and ‘pastiche assemblages’ of information (Kuteeva & Mauranen, 2018).

Dissemination practices are obviously changing and with them our text consumption habits (Mur-Dueñas, 2018). Scientific-technical discourses online are also evolving because of this connectivity and hybridity and becoming more informal, configuring what Puschmann (2015) has called ‘cyberspace college’, where the adoption of genres such as the blog, the tweet, or any knowledge exchange in chat or video format (e.g., video-journals video-abstracts, video-essays, scientific fora in blogs and academic networks, or open interactive article reviews) is eroding the traditional conventions of a depersonalised and ‘sanitised’ style in scholarly interactions: the former avoidance of expressions of emotivity, attitude, and explicit appraisal (Hyland, 2006) is giving way to a foregrounding of the author (Maier & Engberg, 2013) and an unprecedented affective interactivity (Petroni, 2011).

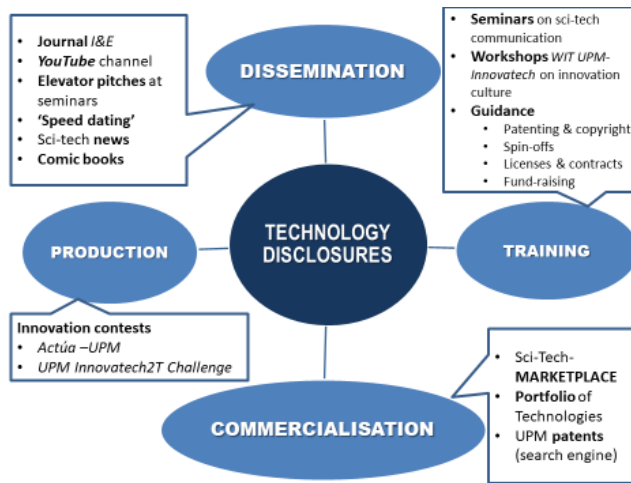


Figure 5. UPM's online constellation/ecosystem of innovation genre colonies

Connectivity regarding innovation at the UPM pivots around four actions: training, production, dissemination and commercialisation (Figure 5). Like many other universities around the world, the UPM offers science news, seminars and workshops on innovation and entrepreneurship, journals for the dissemination of research trends, achievements and policies, contests encouraging innovative initiatives from students and staff, archives of the patents granted and of the spin-offs generated, and guidance to in-house researchers as to the submission, marketing and patenting of their technologies, the procurement of licenses and contracts, and fund-raising strategies. The singularity of this UPM constellation lies in the organisation of face-to-face 'speed dating' events between researchers and investors, the online open-access publication of a bilingual Spanish/English portfolio of its technologies, and the dissemination in comic book format of the most outstanding inventions, ideas and discoveries for scientific or social reasons. If dissemination through social media in the 'cyberspace college' may end up standardising scholarly discourses, genre constellations or ecosystems may become idiosyncratic "ways of telling" an institution's ongoing research story, and with their distinctiveness play an important part in its branding, given that corporate branding boils down to "creating differentiation and preference" (Mautner, 2010).

1.2 A contrastive overview of technology disclosures and innovation comic books at the UPM

Although TDs are essentially descriptive and therefore may be considered ‘narrative truces’ in the research narrative of an institution, the truth is that they are dotted with very brief narrative fragments that may go unnoticed. These are frequently ‘minimal narratives’²³ consisting of one single event (e.g. “This solution won the pHealth Innovation Award 2010...” Sample 54 - Health) or formed by a pair of clauses, one of which may be implicit, recounting a change of state due to an event. This implicitness occurs in formulaic institutional openings such as “Researchers at the Universidad Politécnica de Madrid have developed and manufactured a new concept of laminated material of recycled conglomerate textile...” (Sample 113 - Construction & Infrastructure). If the invention has been developed, it is because it did not exist before (and that is the change of state) but this premise is too evident to be spelled out.

We could qualify the TD at the UPM as an “amphibian hybrid genre” straddling commercialisation and dissemination both verbally and visually, joining scientific, promotional and journalistic discourses, institutional and individual voices, technical and conversational registers and expert and mixed audiences, being technical and emotional (it occasionally inserts emotion-raising visuals as illustration or ornament and may use humorous titles and emotional punctuation), and also multimodal. TDs must have existed at the UPM (probably occluded) before the digital era, but have undergone a substantial transformation under digitalisation. Their rhetorical structure revolves around three nodes: “Description”, “Ethos building” and “Contact”. Table 1 synthesises their moves (and the headings marking them, if any) and basic features.

| RHETORICAL MOVES | HEADINGS / SECTIONS | FEATURES |
|--|--|---|
| <p>Summarised introductory description of the technology + promotion (various degrees of brevity)</p> <ul style="list-style-type: none"> • Title (maximum brevity) • Subtitle (intermediate brevity) • Briefing or abstract (expansion of contents) | No headings | <p>Occasional humor and overt promotionalism in titles and subtitles</p> <p>Fluctuating personalisation in subtitles and briefings</p> <p>All three sections contained in a coloured banner</p> |
| Detailed description of the technology | 'Technology solution' | <p>Paragraph structure</p> <p>Frequent mixture of complete sentences and 'telegraphic style'</p> |
| Claim for research and market 'niches' | <ul style="list-style-type: none"> • 'Areas of application' • 'Market demands' • 'Market potential' • 'Competitive advantages' | <p>Bulleted points</p> <p>Frequent mixture of complete sentences and 'telegraphic style'</p> <p>Occasional inclusion of visuals</p> |
| Ethos-building through research credentials | <ul style="list-style-type: none"> • 'References' • 'IPR' (Intellectual Property Rights) | <p>Bullet points</p> <p>Fluctuating 'telegraphic style'</p> <p>Patents and copyrights as a separate heading for their importance</p> |
| Indication of the technology's development stage | 'Development stage' | <p>Multiple-choice cells to be ticked off: Concept, R&D, lab prototype, industrial prototype, production</p> |
| Contact with researcher(s) and institution | No overall heading | <p>Separate headings for the contact data of researcher(s) and university mediators</p> |

Table 1. Rhetorical moves of UPM's TDs and their basic features

As for layout, UPM TDs stand out for their strong optical resemblance to the current institutional format of academic posters, as can be perceived by contrasting Figures 6 and 7. Both genres contain an introductory banner with the title, enriched in TDs with the successive content expansions of the subtitle and the briefing, and a variable number and distribution of frames and captions. Poster banners, however, carry contact data that in the TDs would go in a final coloured caption. Other coincident features between the two genres are the division of the page flow in two columns (although in the poster sample shown there are cross-page captions), the use of colour codes,

bullet points, institutional and corporate logos, and the existence of references and contact sections. While this optical mimesis has not been confirmed as intentional by the UPM's OTT staff interviewed, its evocation of the scientific poster's layout might contribute to the technology's marketing, positively or negatively: it may bring to mind the quality of being scientifically rigorous, required from conference and university-event posters, and thus trustworthy, but also the opposite, since academic posters are associated with novice researchers. Another remarkable trait of UPM's TDs is the insertion of content highlights (from one to three per TD document) marking the salience of certain information snippets visually (they are coloured, italicised, and bigger than the running text font) in deference to the reader. They tend to go between scare quotes and supposedly reproduce soundbites of the researcher(s) that emphasise the value of the invention or discovery, demonstrate its efficacy, or describe a problematic situation that justifies the technology, as exemplified in (3)-(6).

- (3) "Sustainable restoration of soil health" (Sample 4 – Agrofood & Biotechnology)
- (4) "Delayed relapse in already treated tumors" (Sample 30 – Health)
- (5) "Tested with excellent results in over 800 patients" (Sample 34 - Health)
- (6) "Worldwide data centers produce 2% of global CO₂ emissions." (Sample 75 - IT, Internet & Mobile)



Figure 6. Two-page arrangement of a UPM TD (Sample 66, 'Haptic skin' - IT, Internet & Mobile). Reproduction authorised.

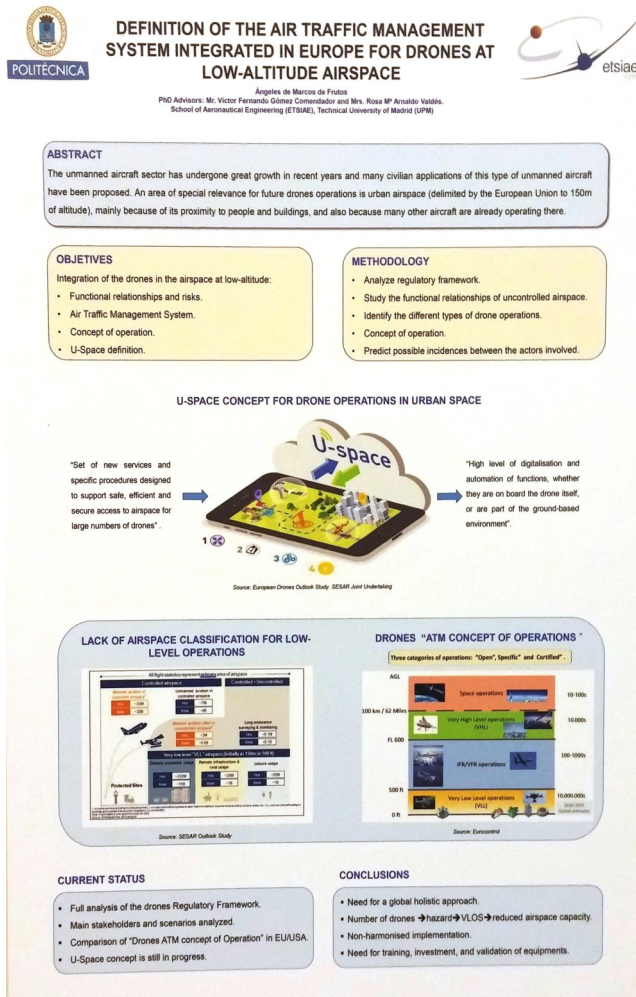


Figure 7. Average free poster composition currently at the UPM (by courtesy of the author)

Comics are, by definition, “narrative drawings” (Groensteen, 2009) and have been equated with “pictorial utterances” (Fisher Davies, 2019). The twelve comic books on innovation produced by the UPM are abridged graphic stories telling about significant in-house initiatives and projects in three pages. Their goal is to show the range of possibilities offered by the university to attract high school students and encourage those in their early degree years to develop an international career. Narrative is quick and linear, rhetorically organised into three parts (Figure 8): the “framing” of the story

by a journalist who has followed the process/event and informs about it, next some “notable episode” or comment with the researcher’s intervention (somewhere in the two middle pages and ranging from animal attacks in the Arctic to communication problems Swahili/English), and on the last page a closure by the same journalist stating the value or success of the project, made possible under the university’s auspices. The three parts are usually unframed -frames do not generally abound - and in consequence characters may slightly intrude into a contiguous panel or scene. There is no stylisation of balloons and captions, that is to say, they do not have shapes metonymically suggesting the characters’ or the narrator’s emotions or mood, such as icicles hanging from speech balloons or captions to denote a cold or distant attitude (or a literal sensation of cold), and there are neither onomatopoeias nor motion lines denoting movement or the passing of time: characters are depicted as static figures on hybrid backgrounds, drawn or/and photographed.

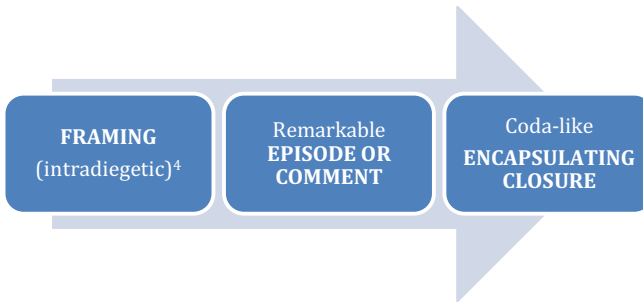


Figure 8. Rhetorical moves sequence in the linear narrative of UPM innovation comics

The amount of text is overwhelming at times, especially that contextualising actions and events, normally uncaptioned, and the number of speech balloons increases in the most recent samples, where splash pages and split panels are introduced. In the former, action is slowed down and drawings more detailed (see the splash page on the right in Figure 10), which produces the same retarding effect as an increase of dialogue. In the latter, the division of a panel into smaller units in a continuous sequence of movement is effective as a filmic ‘travelling’ strategy approaching an object that is becoming closer. Expedition projects include bird’s eye views of trajectories at different angles, detailed views, and blown-up or simplified map images.



Figure 9. Cover of comic book sample 12, published in 2015 (the most recent in the UPM's series)

To summarise, the two genres present mediated research stories, both verbally and visually, but at different paces - much slower in the TD and with a more subtle emplotment. According to the well-known structuralist narrative schemes by Propp (1977[1928]) for the folktale and by Labov & Waletzky (1967) for personal narratives, researchers may be assumed to be characters (and sometimes narrators), the knowledge gap or socio-technical problem may be interpreted as a conflict or challenge, the technology description as its resolution, and TD highlights (together with titles and subtitles) as synthetic evaluations or codas⁵. Research narratives are at the same time collective (institutional) and personal, as the use of personal pronouns, imperatives and other dialogical markers seem to attest. The capital question is whether the focaliser of the narrative coincides with the narrator and the researcher(s).

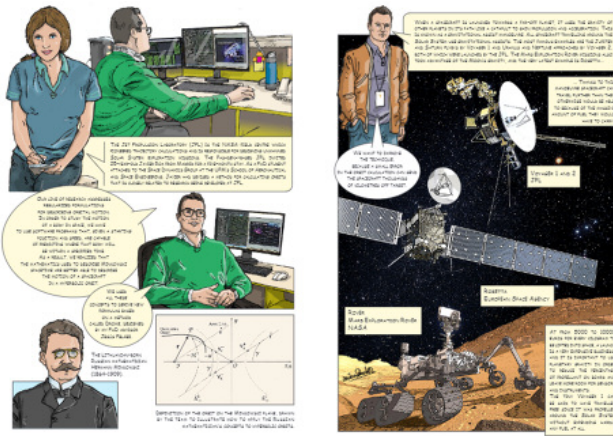


Figure 10. Story framing and episode in comic book sample 12

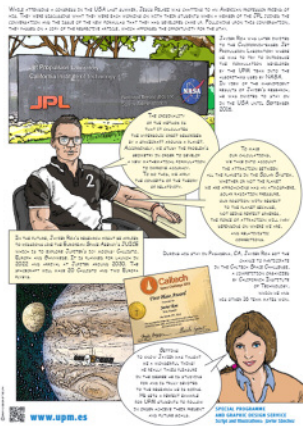


Figure 11. Plot resolution and closure in comic book sample 12

In the comic book sample (Figures 10 and 11) we can see that the verbal narrative mediation by the female journalist throughout the account is not wholly compatible with the visual focalisation in the splash page nor with the planetary scene before the closure. Similarly, the visual focus on the portrait of the nineteenth-century Russian mathematician mentioned, and the recognition of his work in the form of geometrical summary, are not credible as coming from this journalist mediator. All this points to the existence of two focalisers, one for each mode: the graphical artist for the

visuals (UPM comics are signed by a graphic designer responsible for the illustrations and the script) and the institution for the wording, devising and supervising the verbal message to be fitted in the designer's script, which will have previously been approved. The journalist narrator-mediator is a mere telling deployment: it is anonymous and surely fictitious. Her alleged involvement in the technology process is not clear either (has she accompanied the researcher to document the invention all the way through?). Unfortunately, the OTT interviewees available could not estimate the degree of collaboration and agreement between the designer and the staff running the comics initiative, neither how much power of decision researchers have.

2. Corpus and Method

2.1. Corpus

The corpus scrutinised for this study comprises the 134 entries of the current UPM's online *Portfolio of Technologies*, published for the first time in 2018, and the 12 instances of its comic book collection in the innovation section of the university's website, progressively designed from 2013 to 2015. For diachronic comparison of TD layouts, I extracted average samples from diverse technological fields contained in the electronic corpora that I compiled at the University of Michigan in 2011 (of URC TD samples and average instances from some universities outside the URC, among them the University of Florida).

2.2. Method

In addition to lending us discourse analysts the controversial notion of narrative focalisation, Narrative Inquiry (Czarniawska, 2011; Giménez, 2010; Kohler Riessman, 2008; Linde, 1993, 2009; Ochs et al., 1992; Prince, 1982; Ryan 2004a, 2004b, 2008; Schiffrin, 1996) synergizes with Positioning Theory (Harré & van Langenhove, 1999) and, like (Critical) Genre and Multimodal Analyses (Bhatia, 2002, 2012; Machin & Mayr, 2012), complements the analysis of digital genres and their contexts, as well as the ethnographic research intrinsic to Netnography (Kozinets, 2015), in my case semi-structured interviews with the UPM's OTT staff, known as OTRI—*Oficina de Transferencia de Resultados de Investigación*. As Positioning Theory holds that discursive positions are shaped by storylines and speech acts, Netnography

and Narrative Inquiry go hand-in-hand in the examination of the teller's role and the telling practices employed.

Practically since its inception, Positioning Theory has served to evaluate technology: van Langenhove and Bertolink (1999) regard "technology assessment" as a socially constructed process traversed by multiple storylines that lead to an eventual plot of decision-making on the part of authorities, policy-makers and investors. In their positioning approach, these authors pose the question of what specific storylines intersect from three groups of stakeholders with different technology assessment discourses: the "agents" involved in the processes of production, development and implementation of the technology (i.e., researchers, institutions, and other decision-makers), the "beneficiaries" (i.e., technology users in the main, and commercialisation partners), and the "victims" (i.e., people marginalised by the technology or suffering its negative side effects). The present article, focused on the TDs and innovation comic books of a renowned higher education institution, clearly deals with the first group of stakeholders.

If above I have described the notion of focalisation as 'controversial', it has been because it still causes some confusion as to its scope and analytical differentiation. It may be mistaken for 'voice' and has been long related to visual perception, as the terms 'perspective' (Herman, 2009, 2010) or 'point of view' (Simpson, 1993) hint. The filtering of a narrative, nonetheless, may also involve cognition and emotion, as Horskotte and Pedri (2011) advocate. Yet no consensus has been reached with regard to their conceptual inclusion.

My model of analysis (Table 2) aims to clarify narrative positions and detect focalisation by integrating the two tenets of Positioning Theory, storylines and speech acts (specifically of request, as a dialogical signal) in the threefold evaluative levels pinpointed by Cortazzi and Jin (2003[1999]): evaluation 'through', 'of' and 'in'-narrative. In TDs I confine my analysis to the sections that more immediately grab the reader's attention (the captioned sections and the highlights) and may act as 'codas' evaluating the technology. I also integrate cognition and emotion by examining the most encapsulating move (or section/component) in each genre, and dialogic markers (the use of personal pronouns, imperatives and expressive punctuation). I provide percentual counts of the number of samples exhibiting a certain feature and illustrate them with examples.

| PLANE/LEVEL of narrative evaluation | ITEM or PRACTICE | SEMIOTIC MODES | |
|--|------------------------------------|--|---|
| | | Verbal features | Visual features |
| THROUGH narrative | Storylines | Topics and actors' discourses | Connotation, logos |
| OF narrative | Subnarratives within storylines | Titles Subtitles Highlights (TDs) Closures (comics) | Banners and captions Panel treatment Illustrations |
| IN narrative | Dialogue markers | Speech acts of request Pronouns | Expressive punctuation Speech balloons |

Table 2. Model of analysis combining planes, items and modes

The other point of contention with respect to focalisation is the ambiguous meaning of the question “Who speaks?”, which may lead to an erroneous identification of narrator with focaliser, especially when making meanings multimodally. In this sense, Goffman’s question (1981, p. 128) “Who is speaking?” must be metaphorically interpreted or reformulated as “Who is behind the telling?”, “Who perceives?” His taxonomy of roles may prove useful to differentiate functions and responsibilities: the ‘principal’ (i.e., the person or group committed to the meaning transmitted), the ‘animator’ or actual teller, the ‘author’ or utterance/visuals designer, and the ‘figure’, an actor or agent in the research story. Only ethnographic research may dissipate doubts about authorship and commitment.

3. Findings and discussion

Expectedly, the interviews with the OTRI personnel corroborated that the institution controls every text for dissemination and commercialisation at each and every stage. TDs are written and composed by OTRI marketing specialists (ten years ago, the University of Michigan was employing selected postgraduate students trained in the writing of marketing abstracts after a crash course). When asked about such a high degree of institutional intervention, the OTRI interviewees adduced that researchers tend to have difficulties in marketing their contributions, accustomed as they are to

‘restrained persuasion’ (Sales, 2006), based on empirical data to support arguments. No matter who the narrator (i.e., animator) or the author may be, the UPM will always be the ‘principal’ and ultimate focaliser, but focalisation may shift and convey perceptions of the animator/narrator, the principal, the actual author of the text, or of one or more figures/characters, across genres with similar content and even across sections within one same genre. Some UPM TDs instantiate this phenomenon: they bring together formulaic institutional language, direct appeals to the reader as technology beneficiary by means of second-person pronouns, quoted excerpts (i.e., highlights) thought to reproduce the researchers’ speech, researchers’ vantage points marked with the use of ‘we/our/us’ in an exclusive sense to stress their protagonism in the research process, or in an inclusive manner as part of the beneficiary group.

3.1 Evaluation through narrative

Interview responses and mission statements in the UPM’s website make it explicit that the storyline desirable in TDs is one of cooperative endeavour that entails novelty/innovation (i.e., scientific-technical progress) for the common welfare and expertise/reliability. Pervasive institutional formulas of the type “Researchers at the UPM have created...” opening the briefing inside the banner (and functioning also as of-narrative evaluators), and the fixed line “Technological solution supported by the Universidad Politécnica de Madrid” (placed just below the banner) give the institution visibility and state its crucial support, as do the university shield and the OTRI logo on top of the page, on the leftmost and rightmost corners. Analogously, the large number of corporate and institutional logos that fill the pair of pages (Figure 12) before the technologies catalogue proper function as condensed narratives indicative of cooperation and of the importance of the UPM’s technological enterprise. Cooperation is also underlined with two overt expressions: “in collaboration with...” and “together with...”, which collocate with “Researchers at the UPM...” in any of its variants (e.g. “UPM researchers have...”, “A group of researchers from the UPM propose...”, etc.). The expertise and reliability component is conjured up by the researchers’ credentials in the ‘References’ section, by the inclusion of graphs, diagrams, pictures of complex instruments and procedures and, intendedly or not, by the scientific poster-like layout.



Figure 12. Sponsor and partner logos preceding the catalogue of technologies in the *Portfolio*.

The storyline of comic books is one of adventure, sustainability, and social involvement. Five of the projects narrated assist communities in developing countries or regions (Haiti, Ecuador, Cuba, Tanzania and Mongolia) to reconstruct and supply areas devastated by natural catastrophes, equip them with infrastructures, or preserve cultural heritages and biodiversity. Curiously enough, the adventure ingredient is sometimes materialised through graphic connotation, as can be observed in the cover of sample 5 (Figure 13), whose compositional similarity with that of an adventure classic, one of Tintin’s volumes, is noteworthy. It remains to be known, however, whether it was strategically intended by the graphic designer of suggested by the O’TRI.



Figure 13. Compositional similarity between a UPM comic and an adventure classic

3.2 Evaluation of narrative

Storylines divide into three interrelated subnarratives that report the centrality of the account: of “achievement”, of “validation”, and of “prediction”. The first is found only in briefings and highlights and refers to the creation of a technology, service or method, or to the resolution of a problematic situation. It expresses a sense of accomplishment, usually in the present perfect, as this tense implies both temporal proximity and completed action. The formulaic language already mentioned performs this function under a discernible institutional focus opening the briefing, but it can also be fulfilled by pronominal use (exclusive ‘we/our’) under a strong researcher focus (7).

- (7) We designed a rubber-cement compound with high mechanical strength and we use it to make ecological concrete blocks (...) (Sample 109 - Construction & Infrastructure)

The narrative of validation infuses reliability by providing an external objective evaluation of the research outcome. To do so, it alludes to test results, the number of purchases, replications, successful cases, and implementation in prestigious settings or worldwide (Examples 8-9). Like the narrative of achievement, it is not present in titles and subtitles and predominates in briefings, although in some areas, such as ‘health’, it may concentrate in around 25% of highlights. Its focaliser is rather difficult to discern.

- (8) The tool is already available in the field of ophthalmology and has been tested with good results in over 800 patients. (Sample 34 - Health, briefing)
- (9) Glottex is used by one of the Spanish security forces for forensic identification by voice. (Sample 42 - Health, briefing)

Finally, the subnarrative of prediction either emphasises the utility or possible applications of the technology (10), or the problematisation that justifies its creation (11), in the future simple for probable events and consequences or in the conditional for more remote ones.

- (10) This system could be useful for satellites that are in the Earth’s orbit. (Sample 103 - Space, briefing)
- (11) In 2020, anxiety disorders, stress and depression will be the number one

cause of disease in the developed world, according to a study (...)
(Sample 83 - IT, Internet & Mobile, highlight)

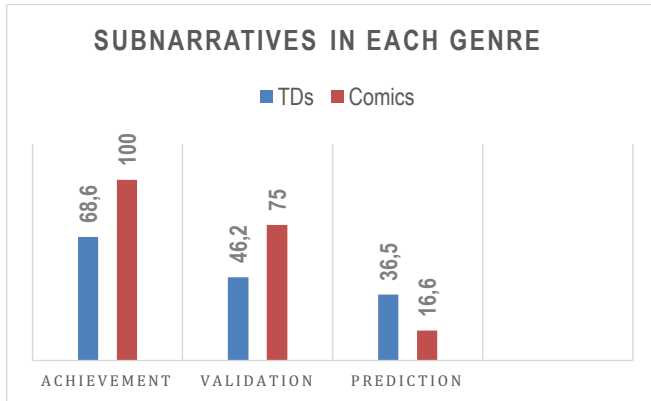


Figure 14. Percentages of samples containing each subnarrative in each genre

Figure 14 reveals that the subnarrative of achievement is ubiquitous in comics: the fixed evaluative closure by the journalist-narrator stating the point of the project or service in all samples acquires the quality of almost-formulaic language, which, according to Linde (2009), is equivalent to ‘retelling’. By contrast, not every TD briefing opens by framing the technology with a formulaic expression of achievement and collaboration, since there is variation in this introductory move. Briefing starts may convey achievement with the very definition of the technology (12) or in a personalised fashion (13). They may even pave the way for achievement through problematisation (14).

- (12) “Disruptive technology with a simple final product: SEEDS of cereals capable of generating crops without absolute need for nitrogen fertilization. (Sample 1 - Agrofood & Biotechnology)
- (13) In Leuko Labs, we identified a crucial medical need: to avoid the serious infections that frequently occur in cancer patients treated with chemotherapy. (Sample 28 - Health)
- (14) Over 500 million people worldwide suffer allergy symptoms because of the exposure to pollen and fungal spores present in the atmosphere. (Sample 10 - Energy & Environment)

Precisely due to the humanitarian nature of many projects, prediction subnarratives are fewer in comics than in TDs and do not consist so much in empirical data but in enumerations of additional applications and extrapolations to project-related fields of activity. Validations in comics are mostly commented on by the journalist, although in a couple of samples by a researcher figure. They inform about award recognitions, implementations in corporations and universities, and researchers' invitations to distinguished institutions and projects.

TD Highlights (however personalised with pronouns) and the speech balloons of research characters in comics cause attribution problems as off-narrative evaluating devices. It cannot be assured that a researcher's speech balloon message was once uttered by him/her, and OTRI informants have admitted that highlights, despite going between scare quotes, are not actual researchers' soundbites from interviews or meetings, and are rarely literal excerpts from their written technology summaries, which thwarts the readers' expectation of a judgement or emphasis coming directly from the inventor/scientist. Highlights are selected and written by the OTRI staff and consequently constitute a case of unintended 'fake focalisation' or 'discursive usurpation' out of politeness to minimise the reader's effort, because highlights function as metadiscourse markers that help process the information.

Titles and subtitles epitomise the narrative content and reflect the author's attitude towards it and towards the interaction in which the narrative unfolds. As subtitles are longer and more multifunctional, they are not examined here but reserved for further research. Among titles (see Figure 15) there is a strong inclination towards promotionalism, represented by types that envisage the narrative as a profitable transaction (Examples 15-17): 'slogan-like', 'brand + detail', and 'boosted'. Other types may imprint a 'procedural' or 'in-progress' narrative nuance (18), or even a jocular tone through puns, paradoxes, onomatopoeias, metaphors, and cultural intertexts that may strengthen communal and generational bonds (19-20). Counterintuitively, flat denotative titles with noun phrases (21), present in 100% of the comic book samples (e.g. Ecuador project: Phytogenetic resource management and conservation), are negligible in TDs, where more concise alternatives would be expected.

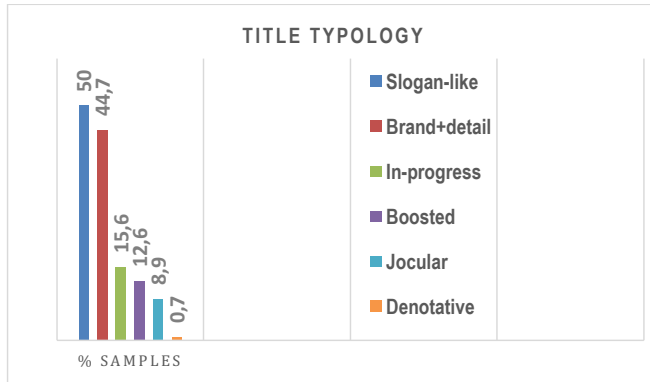


Figure 15. Percentages of TD samples with each title type

- (15) GLOTTEX. Your voice treats you, your voice identifies you
- (16) PHOTO-CORK. Sustainable, economic and new depolluting material
- (17) SEQUENFIL. The most efficient and competent filtration in the market
- (18) DOSIRAD. Measuring the levels of electromagnetic radiation
- (19) a. GLANCE. I can know it! Just with my Smartphone!
b. ALLERTRAP. Collecting the invisible to give visible answers
- (20) DYLAN-Q. Answers are not blowing anymore
- (21) Technical protection for the historical-cultural heritage

To conclude with this evaluative level, it is worth noting that in the comic samples the visual evaluation of what narrative episodes and moments deserve more attention and detail (i.e. a quicker or slower telling pace) is very scarce: there is a single (but *sui generis*) split panel sequence and only one splash page is used in the whole collection (in Figure 10, on the right), whereas TDs may insert drawings and photographs that reinforce the storyline of reliability, welfare and social commitment, even at the risk of looking superfluous: smiley elders and children, growing sprouts, hands scooping seeds, or flowers beside medication, some of which are shown in Figure 16. They function as emotion prompters that condition a favourable evaluation of the technology report.



Figure 16. Emotion-raising illustrations in two TDs

3.3 Evaluation in narrative

The register and tone of the narrative largely depend on a series of discursive features that I have termed “dialogical markers”. The promotional tone of TDs, commercialisation-oriented, may explain the incidence of imperative verb forms displayed in Figure 17, frequent in slogan-like and brand + detail titles (22) but null in comics. The high percentage of comics samples using first-person pronouns is logical, as the journalist-narrator reports on events according to his/her experience with the members of an expedition or of a research process, and so do the characters who intervene in the central episode.

(22) LEUKOLABS. Monitor your leukocytes from home

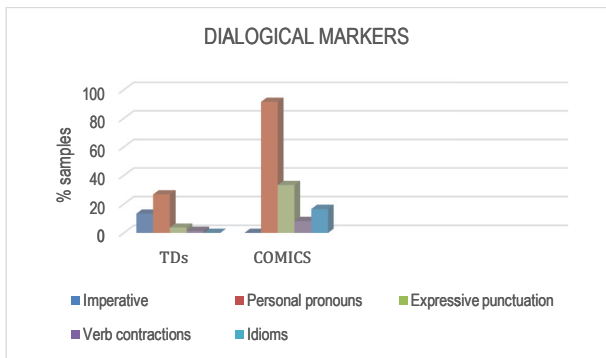


Figure 17. Percentages of samples with dialogical markers in TDs and comics

Conventional comics attempt to shorten interpersonal distance and hence the presence of conversational elements such as verb contractions and expressive punctuation (exclamation marks and suspensive dots), as well as of idiomatic expressions (e.g. “The ball started rolling” and “to be a cinch” in Sample 2 and “to be hard slog” in Sample 4)⁵. Yet these markers of informal interaction disappear gradually in the most recent volumes, where only pronominal use persists.

In TDs, dialogical markers are in the service of promotional discourse and for the most part concentrate in titles and highlights. Sound ethnographic research will be necessary to determine whether the focalisation shifts in some UPM TDs (the coexistence of formulaic briefing openings with inclusive or exclusive ‘we’ to delimit groups of researchers and beneficiaries and with personal highlights) result from co-writing; that is, from the different styles and preferences of several OTRI people participating in the crafting of the text and the lack of a final editor.

3. Concluding thoughts

This first approach to the narrative of my university’s TDs and innovation comics has shown that focalisation is dynamic across networked or constellated institutional genres and also at in-genre level, and that it is not free of risks and challenges, such as discursive usurpation. Time will tell whether TDs and their associated texts will sediment into a ‘university epic’ characteristic of each institution, or whether intersemiosis will intensify with the incorporation of more digital affordances such as audio files, news tickers/crawlers, and videoclips, and with the embedding of genres such as interviews, elevator pitches, or short lectures. Some productive research sites may stem from this study. One is the series of occluded genres previous to the design of TDs and comic books: forms, comic-book script briefings, researchers’ written summaries, interviews between researchers and OTT staff, feedback correspondence and the editing of texts, etc., which would demand great institutional openness and commitment. Other possible research paths are the frequency, distribution, and qualitative description of evaluative language (‘in-narrative’ devices) with the aid of Corpus Linguistics, the typification of narrators and the detection of more focalisation indicators, and genre constellation contrasts between national and international universities. It is my wish that this article should open up

fertile research grounds within the analyses of genres, discourses and institutional narratives, and inspire other scholars to build more refined analytical models.

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NOTES

¹ There is no scholarly consensus as to whether narrative is a '(macro)genre' (e.g. Martin & Rose, 2003), a 'pre-genre' (Swales, 1990), a 'register' (Biber & Conrad, 2009), a 'mode of discourse' (Bal, 1991; Kress & van Leeuwen (2010), or a 'form of discourse' (Bhatia 2002, 2012; Georgakopoulou & Goutsos, 1997; Hinchman & Hinchman, 1997; Salmon, 2010). Ryan (2004, p. 6) even defines it as "a concept broader than a genre".

² The URC, today alternatively called ‘URC Alliance’, is integrated by the University of Michigan, Michigan State University, and Wayne State University.

³ A minimal narrative represents one single event (Prince, 2003, p. 53) or contains a single temporal juncture and a change of state (Labov, 1972). That is, one state precedes an event in time, and this event precedes (and causes) the second state.

⁴ Following Genette (1990), the term “intradiegetic” is used to refer to a narrator that is part of the storyworld (e.g., a character or actor).

⁵ In the Labovian model, the coda serves a ‘bridging’ function at the end of the story, which it marks, by returning attention from the world of the story to reality, to the ‘here and now’. In doing so, it frequently encapsulates the value of the story.

⁶ These two samples are not shown in this article but may be accessed through the hyperlink to the UPM comics collection in the References section.