

How To Write an Effective Abstract

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Quick Pitch:

In one minute and just a few sentences (no more than three!), how would you describe your work to us?

(Use the chat, and don't worry too much about correctness or producing polished prose.)

Today...

- Look over some example abstracts to see what presents problems for readers, what helps readers
- Introduce the CaRS Model as a guide for “moves” you can make as you draft abstracts (this also applies to introductions for papers)
- Generate text about your work (which you can continue to refine after)
- Offer some overall advice/caveats for (continuing) your work

Guidelines for Synthesis and Processing of Chemically Stable Two-Dimensional V_2CT_x MXene (Matthews et al.; *Chemistry of Materials*)

In this paper, we report on mild synthesis conditions which result in high-quality V_2CT_x , a Vanadium carbide MXene, and an ion exchange process coupled with flocculation that increases the shelf life of this MXene in aqueous suspension by about 3 orders of magnitude, from a few hours to several months. We discuss the etching and delamination mechanisms and provide a guideline for researchers working with this MXene composition. We explain the effect of etchant formulation, delamination chemicals, and postprocessing on the quality, chemical stability, and optoelectronic properties of the synthesized V_2CT_x . We also demonstrate that during ion-exchange and flocculation tetrabutylammonium or tetramethylammonium ions are replaced with lithium cations. The produced precipitates from delaminated V_2CT_x can not only be stored in suspension for a few months without degradation but can also be redispersed and processed into films. Those MXene films show distinct improvements in the optical and electronic properties. Their electrical conductivities in the dry state can exceed 1000 S cm^{-1} , a value not previously achievable for V_2CT_x . The major improvements in shelf life and properties of V_2CT_x demonstrated in this work are expected to allow fundamental studies of properties of this MXene and greatly expand its range of potential applications. The proposed approach may be applicable to other MXenes that require the use of quaternary amines for delamination.

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U.S. Spanish-Language Television Management during the Industry's First 50 Years (Wilkinson and Contreras-Díaz; *Palabra - Clave*)

This article examines the principal technological, programming, financial and competitive obstacles network management faced from the 1970s to the 2000s, illustrating the variety of fronts on which ethnic-oriented media leaders maneuvered during a period of rapid population growth and industry transformation.

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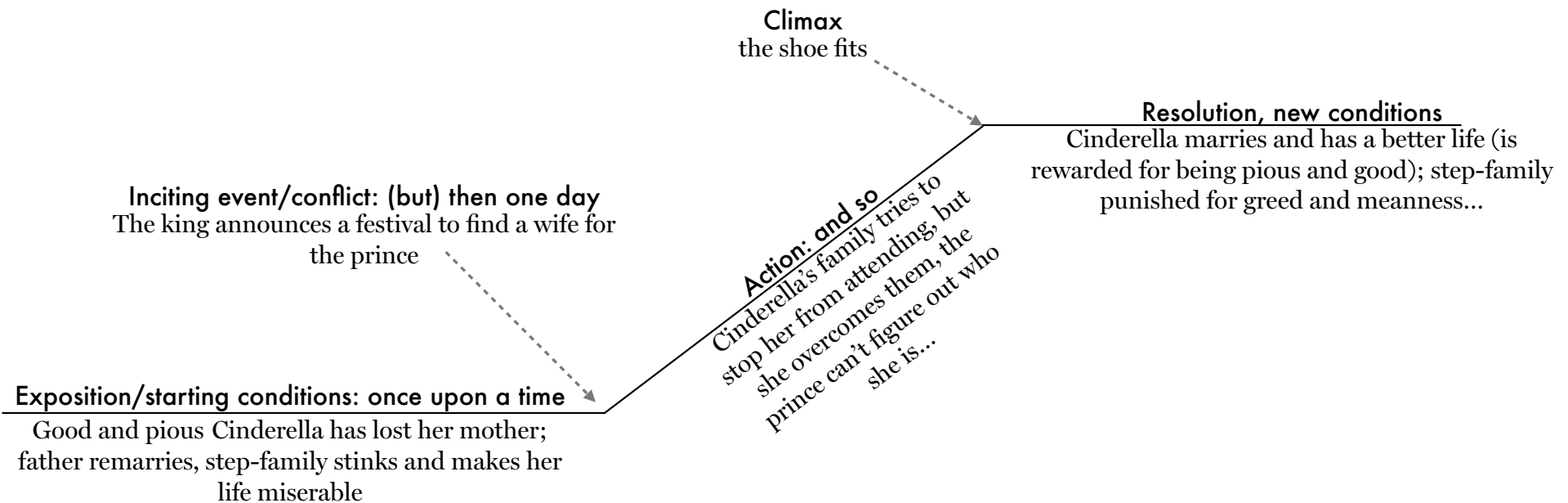
Many people were stunned to learn the Spanish-language television network Univision was the highest rated in prime time among all U.S. networks in July 2013, a feat it repeated a year later. Steady growth of its demographic and advertising bases, combined with astute management, has brought success to this dynamic industry sector. However, the boom years were preceded by several decades of formidable challenges and lean periods. This article examines the principal technological, programming, financial and competitive obstacles network management faced from the 1970s to the 2000s, illustrating the variety of fronts on which ethnic-oriented media leaders maneuvered during a period of rapid population growth and industry transformation.

General Principles

- Abstracts are less effective—especially if intended to reach broad/lay audiences—when they begin by depicting researcher actions/methods (“In this project we...” “Researchers build a scale-model...” “Conductivity of coatings was evaluated in order to...”)
- Abstracts better communicate work and its significance—the “so what?” of the project—when they first offer readers context in which the work is taking place (and/or in which its results will be meaningful); some overall questions readers may want answered:
 - ➔ What present conditions, problems, or challenges does this work respond to?
 - ➔ Who/what will benefit from—or need—this work?
 - ➔ What (relatively) basic or accepted knowledge does this work build on/from?

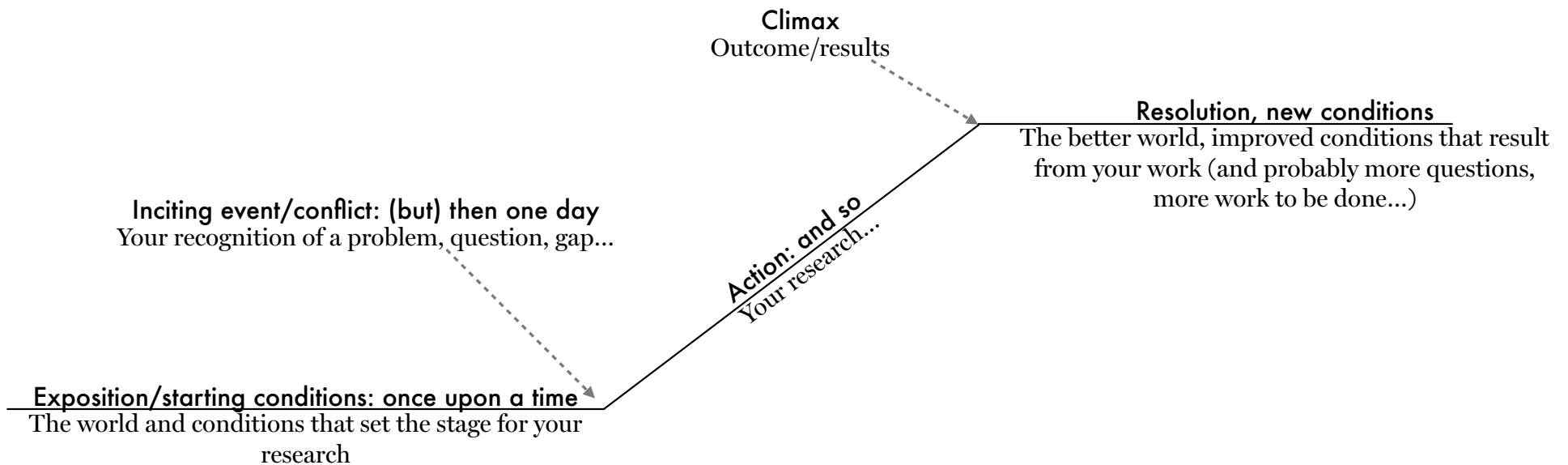
Good to keep in the back of your mind... narrative patterns

In storytelling, the exposition and inciting event help readers make sense of main story material (action, climax, resolution)



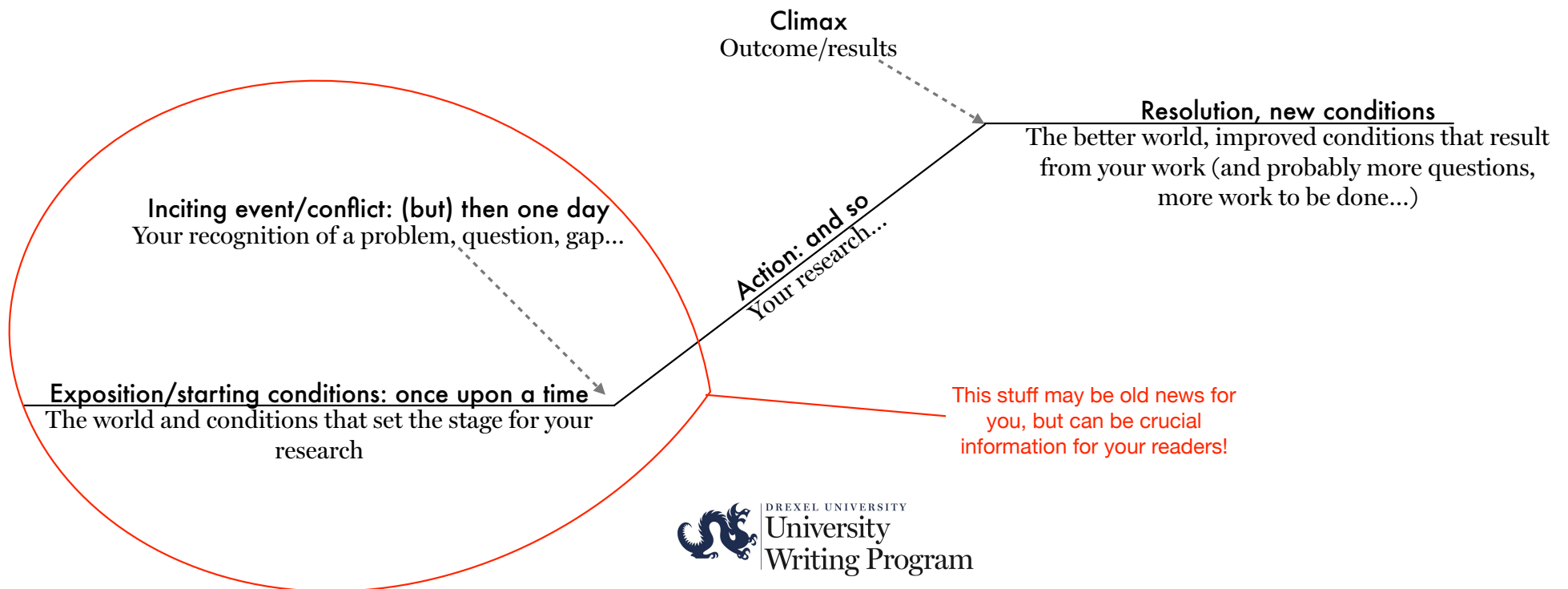
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Research/scientific/technical writing *is not* narrative writing, but consider how narrative structure can help you think about *telling the story* of your research



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Create a Research Space (CaRS) Model of Research Introductions

According to John Swales: In academic writing, writers introducing their research tend to perform the same sequence of *moves* (regardless of discipline or area of research):

Move 1: Establishing a Territory

Corresponds to Exposition
and Inciting Event (from
previous slide)

Move 2: Establishing a Niche

Move 3: Occupying the Niche

Corresponds to Action,
Climax and Resolution (from
previous slide)

Although CaRS dictates three moves, there is variation in execution of each (steps that writers take to execute these moves)

Move 1: Establishing a Territory

(1) Claiming Centrality (importance) *and/or* (2) Making Topic Generalizations (background info) *and/or* (3) Reviewing Previous Items of Research (what is already known/done)

Move 2: Establishing a Niche

(1) Counter-claiming *or* (1b) Indicating a Gap *or* (1c) Question Raising *or* (1d) Continuing a Tradition

Move 3: Occupying the Niche

(1a) Outlining Purposes *or* (1b) Announcing Present Research; (2) Announcing Principle Findings (which can include preview of significance)

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Territory

Niche
(Gap)

Occupation

Note: This abstract establishes a Territory and Niche, although the territory is very brief. For a broader audience, I would discuss the territory further and perhaps help readers understand the broader context (for example, what types of electronics and optics would V_2CT_x be useful in?)

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Occupation

With A Little Help from My Friends: Perceived Task Interdependence, Coworker Communication, and Workplace Friendship (Sias et al.; *Communication Studies*; 145 words)

Workplace friendships are primary sites of organizing associated with important outcomes including cohesive climates, creativity and innovation, and employee job satisfaction. Research indicates the workplace context influences the initiation of workplace friendships via physical proximity and shared projects. The present study demonstrates how another context variable - perceived task interdependence (PTI) - influences both the initiation and the continued development of workplace friendships into closer levels. The links between PTI and workplace friendship were examined, centering on communication (frequency and channel) and trust as mediating variables. PTI was associated with both the initiation and development of workplace friendships. Moreover, the link between PTI and friendship closeness was fully moderated by communication and trust. Results also demonstrated that asymmetric PTI (i.e., one coworker is more/less dependent on the other) influenced trust, but only for non-friend coworkers. Friendship appears to buffer the relationship from potential negative effects of asymmetry.

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Territory

The niche seems to be buried in the occupation

Occupation

Note: While this abstract establishes a territory, the "Niche" is not specifically articulated – we generally understand the Territory and Niche here but the next slide has a suggested revision to make it clearer/more direct for readers.

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Workplace friendships are primary sites of organizing associated with important outcomes including cohesive climates, creativity and innovation, and employee job satisfaction.

Although previous research indicates that workplace context influences the initiation of workplace friendships via physical proximity and shared projects,

no one has studied how another context variable - perceived task interdependence (PTI) - influences both the initiation and the continued development of workplace friendships into closer levels.

The present study examines links between PTI and workplace friendship, centering on communication (frequency and channel) and trust as mediating variables. PTI was associated with both the initiation and development of workplace friendships. Moreover, the link between PTI and friendship closeness was fully moderated by communication and trust. Results also demonstrated that asymmetric PTI (i.e., one coworker is more/less dependent on the other) influenced trust, but only for non-friend coworkers. Friendship appears to buffer the relationship from potential negative effects of asymmetry.

Territory

Niche

This slight revision more clearly establishes a niche by noting that there is a variable that hasn't been accounted for (gap)

Occupation

Discovery of a big void in Khufu's Pyramid by observation of cosmic-ray muons (Morishima et al.; *Nature*; 246 words)

The Great Pyramid, or Khufu's Pyramid, was built on the Giza plateau in Egypt during the fourth dynasty by the pharaoh Khufu (Cheops), who reigned from 2509 bc to 2483 bc. Despite being one of the oldest and largest monuments on Earth, there is no consensus about how it was built. To understand its internal structure better, we imaged the pyramid using muons, which are by-products of cosmic rays that are only partially absorbed by stone. The resulting cosmic-ray muon radiography allows us to visualize the known and any unknown voids in the pyramid in a non-invasive way. Here we report the discovery of a large void (with a cross-section similar to that of the Grand Gallery and a minimum length of 30 metres) situated above the Grand Gallery. This constitutes the first major inner structure found in the Great Pyramid since the nineteenth century. The void, named ScanPyramids' Big Void, was first observed with nuclear emulsion films installed in the Queen's chamber, then confirmed with scintillator hodoscopes set up in the same chamber and finally re-confirmed with gas detectors outside the pyramid. This large void has therefore been detected with high confidence by three different muon detection technologies and three independent analyses. These results constitute a breakthrough for the understanding of the internal structure of Khufu's Pyramid. Although there is currently no information about the intended purpose of this void, these findings show how modern particle physics can shed new light on the world's archaeological heritage.

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Territory

Niche
(Gap)

Occupation

Algorithm fairness in artificial intelligence for medicine and healthcare (Chen et al.; *Nature Biomedical Engineering*; 112 words)

In healthcare, the development and deployment of insufficiently fair systems of artificial intelligence can undermine the delivery of equitable care. Assessments of AI models stratified across sub-populations have revealed inequalities in how patients are diagnosed, given treatments, and billed for healthcare costs. In this Perspective, we outline fairness in machine learning through the lens of healthcare, and discuss how algorithmic biases (in data acquisition, genetic variation and intra-observer labelling variability, in particular) arise in clinical workflows and the healthcare disparities that they can cause. We also review emerging technology for mitigating biases via disentanglement, federated learning and model explainability, and their role in the development of AI-based software as a medical device.

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Territory

Niche

(Counter-claim? Question raising?)

Occupation

Move 1: What is the *territory* you are working in?

What should readers know about the context or origin of your work? Draft a few sentences or list your ideas...

Think especially about *claiming centrality* (importance) and *making topic generalizations* (background information): What should readers know about conditions or problems your work responds to? What background information will set them up to understand your work (and the need for it)?

Note: In an abstract, any references to previous items of research are *usually* general/non-specific)



Society?

Industry?

Science?

Rhetorical Consideration:
How broad should claims of centrality/topic generalizations be (in *this* abstract)?

Move 2: What is your niche in this territory?

How does your work fit into, arise from, or respond to the territory you established? Draft a sentence...

This is *usually* a single sentence and acts as a pivot point between the territory and the work you do to occupy it—think about indicating a gap in knowledge or ability (relative to your territory), raising a question. Broadly speaking, you are indicating the problem that motivates your work.

(Counter-claims are less common in science; some work “continues a tradition” by chipping away at a large data set, taking the next step in the work of your lab, etc.)

Rhetorical Consideration:

Words that establish opposition and contrast are useful—and common—when establishing a niche: however, although, but, despite...

Move 3: What work are you doing to occupy this niche?

This is the “easy” part: what are you doing? Write out your work (and what you have found)...

What is the purpose/goal of your work?

What are you doing to carry it out?

If you have results/findings, you can preview these or forecast what you will learn in your work...

Rhetorical Consideration:
Statements about occupation usually begin with clear subjects and action verbs

Will you use 1P pronouns (“We modeled”), proxy constructions (“Researchers modeled”) or passive elisions (“A model was developed...”)

Abstracting advice

- Abstracts submitted for the DEGS Conference should be 150-250 words, and may include an image
- They are short... but shouldn't be a one-sitting project! Several short writing sessions are better than one long one
- Follow the CaRS model and select/shape material that shows readers the area/context of research (territory), how your research fits in (niche), and what you are doing/have done (occupation of the niche); if you can do this, readers will know *what* you are doing but also *why* it matters (the "so what?" of it)
- *Talk* to people (peers, friends and family) about your work (the CaRS model works in conversation, too!); talking is rehearsal for writing
- Write big and then work down: better to get all the important components on the page and *then* work it into shape and word limit (like a puzzle)
- Principles of clarity and concision apply: when possible/appropriate, use active voice... clear subjects and action verbs near the beginning of a sentence = fewer words and increased readability
- Consult with/get feedback from your advisor/peers about your draft and what is most appropriate (e.g., "To answer this question, we designed a..." vs. "To answer this question, researchers designed a...")
- Drexel Writing Center > Make an Appointment > Graduate Writing Consultants Schedule Winter 2024: **Schedule a one hour consultation to talk about and work on your abstract!**

