THE UNIVERSITY *of* EDINBURGH

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Introduction to communication and media

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Part 1

Communication basics. Media types and functions

Why are communications and media important to me, the scientist?

We'll try to answer this question by looking at your objectives. What are the main goals of a scientist? To do research, disseminate findings, their papers to be cited, and ensure steady income from grants to do more research.

When we talk about disseminating scientific research, we most likely mean disseminating it within academia. But when thinking more broadly, would 'changing the world' be one of the things you, as a scientist would like to achieve? Or more precisely, would you like to have an impact on the world outside of academia?

If you're a life scientist then improving people's health might be one of your goals. If you're working in Science, Technology, Engineering and Maths (STEM) then you might want your research to have social or commercial impact: you might want to find tech solutions to improve people's quality of life or make devices safer and more reliable.

If you are working in Social Sciences, Humanities and the Arts for People and the Economy (SHAPE) you might want you research findings to inform public policy or professional practice.

What does a research success mean to you?

I asked my colleagues at the School of Informatics what a research success meant to them. Here are some answers they gave me:

- Understanding something I didn't understand before
- Making a positive change for a community
- Satisfaction of curiosity
- An elegant solution to a problem
- Finding out something new that helps someone
- Connecting two areas that weren't connected before
- Progress
- Discovery
- A new product

Often, a way to achieve impact is through communicating your research. You can communicate it at a point when it is just a potential and get a potential stakeholder interested in it.

There are many different ways in which you can communicate it to various audiences and media is just one of the platforms you can use.

There are different types of media and you can find the type that's right for you. Learning how to engage your stakeholders with your research via media will also teach you mechanisms that can be applied to different types of engagements with different audiences.

Different ways to communicate your research at the University of Edinburgh

Before we delve into detail, let's look at some examples of science communication that are available to you at the University of Edinburgh.

#EdinburghImpact

In 2021, the University's Communications and Marketing department have launched Edinburgh Impact: an approach to sharing inspirational content that reflects the priorities of Strategy 2030 and the University's institutional research themes under five headings: Research with Impact, Inspiring Minds, Our People, Opinion, and Our Shared World.

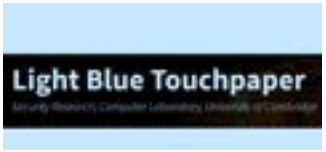
The focus is on content (long-form written pieces and video) that has a personal element - it is not about sharing facts and figures. The approach doesn't rely on external audiences navigating the Edinburgh Impact webpages, but through actively sharing content via the University's main social media channels, including paid promotional posts/tweets, and then monitoring what works and doing more of that.

Become an expert

Another route to consider is establishing yourself as an expert in the public domain. The University of Edinburgh Press Office receives dozens of requests for comment on stories in the news per week.

In the above example, Informatics' Dr Alex Li was approached for a comment on a piece about robopets by Gizmodo, one of the most popular digital tech outlets in the world.

Screenshot: gizmodo.com/why-robopets-will-never-be-real-enough-1847074468



Blog

Science blogs are another way of publicising research. A successful example of such a blog that is followed by a host of tech journalists is Light Blue Touchpaper, written by researchers in the Security Group at the University of Cambridge Computer Laboratory (including Professor Ross Anderson who works between Cambridge and Edinburgh).

In their blog researchers publish brief and timely essays on recent developments and topics related to computer security, including pointers to interesting new research results and literature, opinions on current developments, commentary on media coverage and other musings.

Press Release

You can work with the University Press Office to develop a press release about your research that is subsequently circulated to media contacts and can be picked up by news outlets.

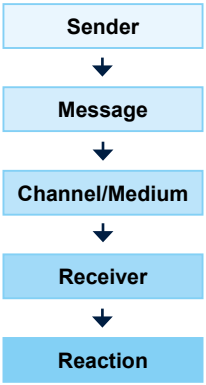
In the above example, Dr Paul Patras worked with a partner institution on a press release that was later picked up by various outlets including EuroNews, giving the story an international exposure.

Screenshot: euronews.com/next/2021/10/15/how-much-do-you-trust-your-android-smartphone-a-new-study-suggests-its-spying-on-you

Communications/mass communications

Let's start with the basics. What does it actually mean to communicate and what is involved in the process?

Harold Lasswell, an American political scientist and communication theorist, came up with a very simple model of communication in 1948: for the act of communication to take place you need the following elements: the sender, the message, the channel, and the receiver – and the process must have an effect that can be evidenced. The receiver is important: you need to know their needs for the process to be effective.



So, if we were to view this chapter as a communications process:

- I would be the **sender**.
- My **message** is to teach you how to use media in the science communications context.
- The **channel** I'm using is the University of Edinburgh website (as you are going to access this resource online).
- The readers of this booklet are the **audience**.
- As a **reaction**, I hope that once you have read this material, you will know more about the topic (and then use your knowledge when interacting with me or my comms colleagues).

Now imagine the sender is an organisation, such as a media organisation: the BBC or the CNN. The receiver are viewers of their programmes and readers of their websites. The communication process on a large scale becomes mass communication. The message in mass communications can simultaneously reach mass audiences – and through multiple channels.

The Media

The media are the means of delivering and receiving data or information: this can include anything, from printed paper to digital data that can reach or influence people.

The term mass media refers to media technologies that reach a large audience via mass communication. The technologies through which this communication takes place include a variety of outlets.

"Mass" refers not only to the size of the audience that mass media reach, but also to uniform consumption, uniform impacts, and anonymity

The influence of mass media has an effect on many aspects of human life, which can include voting a certain way, individual views and beliefs, or skewing a person's knowledge of a specific topic due to being provided false information

Types of Media

There are different types of media and we can categorise them using different typologies.

- **Earned/shared/owned**
- **Print/broadcast/ digital**
- **Old/new**
- **Mass/grassroot**

- **Earned** (or news media) are the ones where we can 'earn' the presence: e.g. a news outlet is going to write a story about our research because it is interesting.
- **Shared** (e.g. social) media allow us to co-produce this type of content.
- **Owned** media can sell space/time for us to feature our story (i.e. sponsored content)

Traditionally, print and broadcast media were the two main categories, but now digital has been added to the mix. The traditional types are sometimes referred to as old (newspapers, radio and TV), as opposed to new media: Internet, social media, apps, etc.

But we can also categorise media by the senders of the message – a very useful category here as grassroot media, where the senders are not professionals, but rather enthusiasts, influencers etc. Scientific blogs fall into the category of grassroot media, likewise a lot of social media channels are not manned by professionals. Internet allowed the grassroot media to expand to such an extent that we can now talk about 'mass self-communication' where we can all communicate on a scale.

What are the disadvantages of such a development? Most importantly lack of gatekeepers who can ensure the message is accurate, impartial and appropriate.

Functions of media

It is good to remember that media have a number of functions beyond informing. So when we consider publicising our research, we can consider which function will work best for our purpose – do we want to inform or educate? Interpret, surveil or persuade? Or maybe entertain? All of this functions can be successfully used to publicise research and engage our audiences.

- **Inform**
- **Educate**
- **Surveil**
- **Entertain**
- **Persuade**
- **Interpret**
- **Link**
- **Socialise**

How do I decide what means, channel, or platform I should use?

You might feel a bit overwhelmed thinking about different types of media, different channels and different platforms. If I was to advise you on how to best publicise your research and on what platforms I'd ask you to consider the following:

- What do you want the impact of to be?
- Who or where are your target audiences?
- What is your key message?

If you are unsure whether you should aim at media exposure, consider the fact that news media reach out to the general public. If the general public are who you are trying to engage with, you are on the right track.

Part 2

Working with journalists

Journalists: Who are they? What purpose do they serve?

The short answer is summed up by Bill Kovach and Tom Rosenstiel in their book, **The Elements of Journalism:**

The primary purpose of journalism is to provide citizens with the information they need to be free and self-governing.

According to advice given to prospective journalism students by the careers portal Prospects.ac.uk: to succeed as a journalist in a local or national newspaper you need determination and the ability to research and write accurate stories to tight deadlines.

The main objective for every journalist is to develop an accurate story – and to get it out before others do.

Journalists versus scientists

Scientists and journalists have more in common than one would think.

Both have to do some research first and then disseminate their findings. But how they do it is very different. Journalists work to very tight deadlines, their deadline can be set before they even researched their story.

By comparison, scientists have quite a lot of time between concluding a piece of research, writing a paper, submitting it and having it published.

Journalists often work to a turnaround of 24 hours and those working in digital media even shorter.

Stories published by the media tend to show issues in black and white, whereas scientific outputs are more nuanced and deal with scientific uncertainty. If research findings are inconclusive, scientists can still publish a paper about them, but a news story will always need the ‘so what’ angle.

Scientific papers use jargon, news stories are free of it.

Both scientists and journalists will be looking for some evidence of claims made.

How do I get my research into the media?

- **Press release**
- **Expert quote**
- **News editorial/column**
- **Featured (paid for) content**

There are many ways of getting your research into the media. Press release is one way of alerting journalists to your breakthrough findings, ground-breaking papers or human interest stories. You will usually work with the University Press Office to develop them.

But what if you haven't recently had any agenda-setting discoveries? You might want to become an expert in your field that would be approached for a comment by journalists. The University Press Office receives numerous requests for expert quotes every week, let your comms team know you are interested and what your field of expertise is and you'll be put forward when we receive such request. We will also promote you through our social media channels. You need to be prepared to respond to such requests very quickly (remember that journalists are working to very tight deadlines).

Once you have established yourself as an expert you might be approached to write an editorial for a news outlet. It is an article on a specific topic written by you. Some really well established researchers also write regular columns for mainstream outlets (example: Devi Sridhar's column in the Guardian).

Last but not least if you have money to spare to promote your science, you might want to buy space in a news outlet to publish a story highlighting your research.

Speak to your comms team to discuss this option and be careful – there might be ethical implications of using this route for your particular type of research.

Is my science newsworthy?

YES

- ✓ **Outcome and impact**
- ✓ **Benefit to humans, animals, environment, society**
- ✓ **Health and wellbeing, tech and innovation, animals, space, robots**

NO

- ✕ **Grant/funding**
- ✕ **New research centre**
- ✕ **Academic award**
- ✕ **Partnerships**
- ✕ **Beginning of a project**

Science is competing with all other news on the agenda. Even the most interesting, breakthrough story will drop of the news agenda if there's something more newsworthy e.g. national lockdown, public figure's death, political crisis, elections. It's worth mentioning purdah – heighten sensitivity - the period of time immediately before elections or referendums when specific restrictions on communications activity are in place and it can impact some science stories too.

We know what media are interested in though and what science stories are more likely to gain traction. Stories concerning outcome and/or impact of research, showcasing benefits to humans, animals, society, stories concerning our health and wellbeing, technology and innovation, space, robots and animals – are all newsworthy. Grant or funding announcements, opening of research centres, awards (other than Nobel Prizes) are generally not newsworthy for national media.

They can usually be publicised in other ways, which can be advised by your comms team.

News values

- **Proximity**
- **Negativity**
- **Recency**
- **Currency**
- **Continuity**
- **Uniqueness**
- **Predictability**
- **Personality**
- **Simplicity**
- **Elite nations/people**
- **Size**
- **Exclusivity**

n 1965, media researchers Galtung & Ruge analysed international news stories to find out what factors they had in common, and what factors placed them at the top of the news agenda worldwide.

The following is their list of news values. The more 'boxes' the story ticks, the greater the chance of it being headline news. Their list has been revisited since and more/different values have been added to the list.

This good comic strip explains how the news values are used in practice (please note, it relates to general news, not science news).

Key considerations when you're engaging with the media

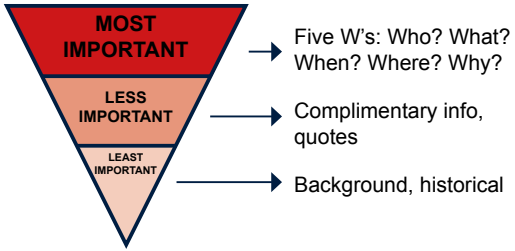
- **What are your three key messages?**
- **Can you present your findings in absolute terms?**
- **What is your elevator pitch?**

To help you decide whether you have a newsworthy story that you might want to contact news media about, consider these three things: what are your three key messages, whether you can present your story in absolute terms (so no shades of grey) and what your elevator pitch is. Imagine you only have a couple of minutes to tell someone about your findings – what do you say?

Timing your pitch right will be of essence. If your story coincides with a publication of a paper outlining the findings, pitch the story well in advance of the publication deadline. You might also have limitations on when you can publicise your story set by your funders, make sure you check with them in advance.

Perfect Pitch

Media stories are written very differently to scientific articles.



The main piece of information is promoted to the top. News articles follow a structure known as the inverted pyramid and the same structure can be used for pitching your story.

The first sentence usually answers 5 Ws: Who, What, When, Where, and Why (or So What?)?

In a scientific article the conclusions usually are at the very end of the article – if you want to pitch your story start with that.

So your pitch might start with:

In a recent study I and my collaborators, established that […].My findings will change our future approach to […].

This is what in a news story is called a lead/lede.

Then you'd add a sentence explaining why you looked into the topic. In a news story this could be followed by complimentary info about the study, you could expand on details of the study and include a quote from you and your collaborator.

Try using these sentences:

Previous studies on the same subject had established that […]. The study followed up a previous study by my research group in which we had found that […]

You should then add any vital background information, including for example information on how the study was funded, and any credentials of authors.

You can follow with:

The article will be published in [month] in [title of the journal]My study was funded by EPSRC.

The very tip of the pyramid includes any additional information that is not essential and can be 'cut off'.

Your pitch should be short, you really don't want anything longer than three paragraphs, enough to gauge interest.

What do you do with your pitch?

Send it to your comms team and let them take it from there.

How to be jargon-free

Hillary Shulman, a communication researcher at the Ohio State University in Columbus, and a lead author of 2020 study on the effects of using jargon on scientific engagement says:

"When we have a hard time conceptualizing information, we become really scared of it," By using jargon scientists "are creating unnecessary barriers with the words they choose"

Ed Yong (National Geographic) lists most common trappings of scientific writing: passive voice, laboured constructions, and roundabout sentences. Carl Zimer (also National Geographic) even collated a list of banned words (words that should not be used when writing about science); the list includes words rooted in Latin, and adjectives like novel and optimal.

In 2017 a team of researchers from the Institute of Technology in Haifa, Israel developed an automated jargon identification program, the De-jargonizer, to help scientists and science communicators write better science communication. The program determines the level of vocabulary and terms in a text, and divides the words into three colour-coded levels: high frequency/common words, mid-frequency words, and jargon/rare words. The De-jargonizer highlights jargon, thus allowing science speakers and writers to consider changing these potentially problematic words for more familiar words or adding explanations.

Why is jargon such a no-go?

You have to consider who your audience is. If you're communicating with other researchers in your field, they will probably understand even the most obscure terms from your research area, but a non-scientific audience might struggle. Journalists have to think about how to reach audiences that might not be familiar with scientific terms. If you want to be a successful science communicator, you have to cut down on your jargon too.

< Source: Rakedzon, T., Segev, E., Chapnik, N., Yosef, R., & Baram-Tsabari, A. (2017). Automatic jargon identifier for scientists engaging with the public and science communication educators. PLoS One

Become a reliable expert

When you are asked by a journalist for a quote, take the opportunity to become a recognised expert! When speaking to a journalist think about everything you have learnt about journalists in this training so far: avoid shades of grey and off-topics: keep your answers simple. Be confident, you are the expert, however be prepared that your words might get edited to fit the tone of the article/news output.

How do journalists find you? They might get in touch with the University Press Office or your departmental comms team and ask to speak to somebody in your field. Or they might get your name from communication issued by the University or your School: web stories, social media posts, or maybe you've been quoted elsewhere. We can promote you to become an expert in a public domain using our channels. Once you build your reputation for speaking independently, journalists might contact you directly.

If you've already done media engagement you might want to take your skills to the next level. The University Communications and Marketing offer a hands-on media training, where you can test your skills in front of a camera while being grilled during a mock interview. Scary? Not as much as applying for some big grants. Remember, you are the expert!

- **Keep it simple**
- **Be prepared – have facts to hand, three points**
- **Stay on track – avoid cul-de-sacs**
- **Be confident – you are the expert**
- **Be comfortable with your words being edited**
- **Build your reputation for speaking independently**
- **Work with your press office and other organisations to be a reliable source**

Part 3

Science Communication DIY

Why should I do it myself?

What are the benefits of communicating science yourself, directly to your audiences?

Most importantly, it allows you to get rid of gatekeepers and editors – you are in control of the content, where it is published and when. It allows you to do it quickly, you don't have to wait for anyone to edit and publish your message. It lets you create and maintain a direct link to your audience, maintain a dialogue with them and receive feedback.

This can help improve your research. This can help with generating impact too, as it offers you a myriad of ways to reach out to your stakeholders (e.g. community groups, patients and physicians, industrial partners etc.). You can build your own reputation as a science communicator and an expert in your field among a non-academic audiences. It will allow you to gain confidence in communicating your science to general public. It sounds like a good deal! But before you go for it, perhaps it's worth to examine some pitfalls of doing it yourself.

- Control
- Speed
- Discussion not dissemination
- Build a name for yourself
- Presentation and comms skills

Pitfalls of DIY science communication

Gatekeepers, whether your comms people, editors or content managers, are there for a reason. They have experience of working with non-academic audiences and can advise what works with them, when it is best to publish, and can help you manage feedback. What are the dangers of promoting unedited scientific content? Well, you are likely to fail to engage audiences that lack scientific background. Engaging public is not just about speaking the language they understand – if you use gatekeepers you also tap into their existing connections and networks.

- ✕ **Lack of gatekeepers – unedited content**
- ✕ **Your personal voice vs your professional voice**
- ✕ **But is it accessible?**
- ✕ **What's the frequency?**

If you decide to do it alone, it's worth thinking about your image and voice: are you going to be speaking to your audiences as a private person or a professional working for an organisation? Should you use your personal profile or create an online presence specifically designed to talk about science? Once you're in the spotlight, it's best to be careful about conflating your science with your opinions.

If you want to reach large audiences your content has to be accessible, not only in terms of the language: your audience may have various needs, e.g. videos need to be subtitled, and online content needs to be accessible for screen readers. There's a whole load of considerations to look into to make sure that you don't miss anyone out.

Last but not least: you have to keep your audiences engaged. Whether you decide to write a blog, or record a podcast or maybe set up a science Twitter account: you need to create your content regularly, otherwise your audiences will lose interest.

Whilst the set-up costs can be small, the time investment can be large depending on your goals – so consider how you will build your social media activity into your existing routine.

Posting on social media does not mean that you will access the groups you want to engage with – you will need to work hard to make connections, and get noticed. Not everyone will welcome your content, so make sure you have a strategy for dealing with any negative feedback or trolls.

What are my options for doing it myself?

Lines have become increasingly blurred between social media and other platforms and you probably no longer would just pick one platform to publicise your content. If you have a blog, you want it publicised and you're likely to do it via social media and use all the options that social media give you: hashtags and tags for a maximum exposure (i.e. tag your institution and your collaborators – it is a prompt for them to repost your content). Instagram and TikTok can be used as your vlogging platforms for shorter content.

So, what you'd really want to do first is decide whether you're going to use a shorter or longer form and then settle on a platform that suits your content best – and then perhaps which platforms can complement it and help you spread the word. Be careful though: the digital landscape keeps changing and by the time you read this guidance there might be a new trend, or a new feature that everyone will jump on. Instagram stories, inspired by the growth of Snapchat were introduced in 2016 and today you cannot run a successful Instagram account without relying on stories. In 2021 Twitter launched its audio networking feature: Spaces. It remains to be seen how this feature can grow and whether it can be used to communicate science.

Source: NCCPE What Works. Engaging the public through social media

Before I start – what do I need to know?

Before you get on the social media bandwagon, stop and think. How confident do you feel using social media channels? It seems easy, but can backfire if you don't do it right. If you want to use these channels effectively you might benefit from a training. First and foremost you must consider whether the audience you are trying to reach is on social media. Is it the right medium to reach them – and which platforms are the best? How will you know you've been successful – what if no one engages with your content?

How will you create your content? You might need to consider arranging time to create and schedule your content. You might also want to identify existing channels that you will be engaging with, or 'piggybacking' on their content.

Developing social media content takes time. On most platforms text will not be enough. Do you know how to develop engaging visual content? Your content needs to be compliant with Data Protection legislation, and accessible. You also might need to plan who will be managing the social media account for you – is it going to be you? Or a colleague, or maybe a student? How sustainable is this arrangement going to be?

Social media platforms provide a lot of useful metrics to measure the success of your content. Make sure you use them to evaluate what works for you and what doesn't: what types of posts were most popular, what publications times worked best?

Knowledge

- What do I need to know about social media?
- Would I benefit from any formal training?

Purpose

- Who am I trying to engage with and why?
- Is social media the correct approach?
- How will I know if I have been successful?

Platforms

- Which platforms are suitable for the people I would like to engage with?
- Which are suitable for me and my colleagues?

Content

- Where will I source content? How will I tailor this to the platform?
- Can I 'piggyback' onto other events or engage with others?

Management

- How much time am I prepared to put in? Who will manage the social media account?
- What is the timeline for this activity?
- Have I taken into consideration any ethical or governance issues?

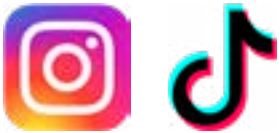
Review

- Schedule reviews to ensure you are on track, and learn as you go.
- What worked well? What didn't work so well?
- Evaluate and use analytics.

Most popular social media platforms

The number of different social media platforms out there might be overwhelming and it is constantly changing: users and platforms come and go and if you want to stay on top of it all, you need to be where your audience is.

To help you with that let me break the most popular platforms down for you.



Twitter and Linkedin are most likely the ones you want to have a closer look at. Twitter with its hugely popular academic hashtags (#AcademicTwitter) is the one you should turn to first.

It is extremely fast, so you need to publish your content regularly. It is about a conversation so engage with comments. What are the downsides? It has a limit of 280 characters per tweet (but academic content tends to be posted as threads, marked by a spool emoji).

You can't edit your tweets (e.g. to correct a typo). And it is an unforgiving place, known for heated, polarised and often very political discussions, and bots and trolls looking for an argument. You are likely to find a great scientific community on Twitter but it might be more difficult to reach out beyond it.

LinkedIn is where business is so if you're looking to connect to the industry you might want to use LinkedIn. Disadvantages? This is a platform linked to your profile, so if you join, you will be speaking as yourself, with all your connections being able to view you through your CV. Also, your audience will mostly include people you are already connected with.

It's a bragging platform, where successes are celebrated and tips on improving your productivity and develop your career plentiful. But – you can also tap into groups and networks of like-minded people. Disadvantage: you might find yourself preaching to the choir again.

If you think that these platforms might not offer you a chance to speak to the general public then you are probably right. Users have to actively follow you or connect with you to see your updates. However, these platforms give you another opportunity: to be visible to the media. Science journalists often follow interesting science accounts on Twitter and may get in touch with you via the platform to publicise your work further. It's worth noting that you can post links to longer forms (e.g. blogs, websites) on these platforms.

According to Statista, in 2021 the visual platforms together had the most active users: YouTube may soon overtake Facebook with its 2.3 billion monthly active users, Instagram has surpassed a billion, and TikTok is slowly getting there (over 600 million).

But are they any good for communicating science? They certainly are worth considering if your content has a visual aspect. Instagram allows text to go with your images but is notoriously difficult to post URLs to. Popular 'link in bio' functions helps to overcome this problem – this function is offered by platforms such as Linktree or Linkinbio.

TikTok is the fastest growing platform – it has only been around since 2017 but has managed to build up a massive following with its users in the youngest age bracket (up to 29). It's a video sharing platform that relies on trends for publicising content. Hashtags are also in use, but everything about your video will count, including whether it's using popular tunes as background music.

YouTube is a bit of a social media dinosaur – it was launched in 2005 and remains the most popular video sharing platform. You can use it to share longer forms (including lectures and talks) which may make it a perfect platform for you if you plan to produce science videos.

But beware: there are dangers of these popular channels. For starters, these trending platforms don't always have the greatest reputation: Instagram has been accused of having a negative impact on mental health particularly among its younger users drawn to unrealistic standards promoted through the platform.

TikTok is full of pranks and relies on shorter forms – longer videos will be quickly scrolled over. YouTube is a home to conspiracy theorists and questionable pseudoscience videos.

Facebook is one of the first and most popular social media platforms, it has been around since 2004. It allows you to share various types of content (text/audio/video). You can create pages and groups, invite people to events, broadcast live, and sell products.

Facebook probably has the biggest risk of conflating your personal profile with the public one: it has originally be created to connect you with your friends and while this is still the case, you can change settings of your account to post publicly as well.

Despite being the platform that offers the most features (anything from inviting people to events, broadcasting live, to selling products) it is probably the trickiest in terms of reaching out to a specific audience. It is not immune to gaining bad reputation (Cambridge Analytica scandal, mis- and disinformation accusations, bots and trolls, heated debates under public posts) as well as the threat of ceasing operations in Europe.

How to become a blogger?

PROS

- Longer form content, so can go into more detail about your research
- Include necessary hyperlinks to make your work credible
- Pairs well with social media platforms
- Easy to network with other researchers and the sci comm community

CONS

- Need to post content on a regular basis
- Time consuming and needs to be planned/ scheduled
- More niche audiences, narrower reach

SKILLS

- Need to be able to attract and maintain audiences with writing
- Must disseminate research using little jargon
- Identify audience, purpose and message

PLATFORM

- Medium
- The Conversation
- Self-run blogs (WordPress, SquareSpace, Wix)

Blogs, originally called weblogs) have been around for a while – they emerged in 1990s and rose in popularity in the early 2000s.

Blogs develop to be a bit more than online diaries: they are platforms used to share very specific, topical content. Science blogs are a popular form of sharing scientific content either with other scientists or a non-scientific audience.

Science journalist, Kelly Oakes, has some tips for science bloggers.

1. Figure out why you want to blog – what do you want to write about and for whom
2. Set it up – what is the best platform for you? Your institution's blogging service? Free wordpress page? Or maybe an established platform like Medium or The Conversation?
3. Think about joining a network – a lot of established science bloggers write on blog networks rather than their own sites. This can certainly help publicise your content, but will have some limitations: you will need to fit in with the rest of the team, and write when required.
4. Get writing – find your niche and become a go-to person for a particular kind of science writing
5. Use the internet properly – think of people's attention span. Don't write essays! No one will read them. Use images and videos.
6. Write good headlines - descriptive headlines that tell a reader exactly what to expect often work well. Use keywords, make your post searchable!
7. Shout about your work. Tell everyone about your blog. Use social media to publicise.
8. Don't steal images – only use Creative Commons (CC) licensed images or your own. Otherwise ask if you can use other people's images.
9. Decide on your comments policy – Internet can be a nasty place. Consider moderating your comments, or coming up with a policy on how you're going to handle any negative comments.
10. Stave off boredom – don't let your blog fall asleep. If you have nothing exciting in the pipeline, write a post about something you consider getting involved with. Or review someone else's work.

Put a face to a name – science videos

Vlogs are video logs and can be used to share scientific content in the form of science videos. What distinguishes vlogs from any other science videos is that they should be regular and have a common theme.

But, any science videos might be a good way to publicise your research and are also more and more common way of disseminating findings among the scientific community.

If you are considering making your own science videos there is a whole lot of considerations to make: videos are time-consuming, require recording and editing skills, and professional equipment (microphones, cameras). Plan ahead, before you set out on a journey on becoming a scientific TikTok influencer.

What makes an effective science video?

According to the Science Education Centre, Smithsonian:

Short duration - brevity is essential to both attracting and retaining an audience. Videos between 2-5 minutes in length seem to be a staple of the field.

Narrow scope - Short videos typically have space for only a few content points, with the scope narrowing further as the complexity of the subject matter increases.

Evergreen subject matter - As a few decades in the internet age have taught us, everything posted lasts forever and (due to production time) it's nearly impossible to stay current. The best solution is to eschew the trends of the moment and instead cover topics with long-term relevance and broad appeal.

Titles phrased as questions - Possibly an unexpected consequence of search engines pervading our everyday lives, videos with titles phrased as questions (e.g. What makes an effective science video?") have been found to attract greater interest and viewership.

Hear all about it – podcasts

Podcasts have been around for some 20 years now, originally as audio files attached to RSS feeds. Once an obscure method of spreading audio content are now a recognised and extremely popular medium.

Buzzsprout reports that more than half of the global population is listening to podcasts. During Covid, podcasting experienced unprecedented growth and podcast audiences diversified. But that means there's a whole lot of competition in a podcasting world. so if you want to start your own podcast – there's a lot to consider.

Objective: What is your objective? To engage public with science? To connect with like-minded people? To raise the profile of your research group/the School/the University? For students to get experience? Defining the objective will help you identify the audience for the podcast.

Audience: Who is your audience? Is it non-scientific public? Other staff/students? Is your audience likely to be technical or non-technical? Defining the audience will inform the format, content and language of the podcast.

Time: How much time per week do you have to work on the podcast (including recording, editing and production)? It can take up to 40 hours of one person's time to produce, edit and market one episode of a podcast. You need to plan out your podcast series (~6 episodes) in advance and decide what you are trying to achieve. Produce all the episodes + trailers in advance and then market them to gather interest.

Skills: Do you need any specific training (e.g. interviewing, recording, editing, etc.)? Colleagues who currently produce podcasts might be happy to do workshops/Q&As based on their experience. If you need to learn how to use the appropriate software, try Linked Learning online tutorials.

Software: Do you have access to the relevant software? Do you have a budget to pay for software licences?

- Adobe Audition (Adobe Cloud licence required)
- Squadcast (subscription fee)
- Transcript
- Audacity (editing, free)
- Zencastr (for recording interviews online)
- Buzzsprout (for distribution, free, subscription to create audio snippets)

Equipment: Do you have access to the relevant equipment? Do you have budget to pay for the relevant equipment? Professional microphones will be required.

Am I going viral?

One undeniable advantage of communicating science digitally yourself, whether in a blog or via social media platforms, is that you get an insight into who is interacting with your content. But beware, numbers can be misleading.

Reach vs engagement

In very general terms reach tells you how many people your content reached. This number can be really high. But reaching people does not mean they have interacted with your content in any way other to just scrolling down. Yes, maybe your tweet was displayed on the screen of their phone, but it doesn't mean they've read it. The number you should look for is the number of engagements, that means the number of people who liked/shared/commented on your post or clicked on an image/link associated with it.

Click through rate and time on page

If you're developing a blog, or a science video that's promoted through social media you want to know how many people clicked on the link to your blog/video (this is called click through rate). And you want to know how much time people spent reading your blog or watching your video. Web analytics can tell you what the average time spent on your page was – and the more it is the better. YouTube analytics can show how many minutes of your video an average viewer watched. You can see how these numbers can tell you more than the number of visits to your page and how many views your video got.

Don't feed the trolls

An internet 'troll' is someone who posts offensive and controversial comments online in order to generate reactive responses from other users. Make sure you don't 'feed the trolls.' If you're not sure if someone is a troll, you could answer once, but then walk away. Recognise it as something trolls enjoy and try not to take it to heart. Report it to the social media platform if you think it violates their code of conduct. Beware of how you respond to negative comments – you risk reputational damage to yourself and your institution.

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