UNIT 11: SCIENCE COMMUNICATION FORMATS

UNIT STRUCTURE

11.1 Learning Objectives
11.2 Introduction
11.3 Science News
11.4 Report and Reportage
11.5 Features and Articles
11.6 Sources of Scientific Information: Primary, Secondary and Tertiary
11.7 Weakness of Various Formats
11.8 Summary
11.9 Further Readings
11.10 Model Questions

11.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- understand various science communication formats
- learn the strengths and weaknesses of various formats
- conceptualize different sources of scientific information

11.2 INTRODUCTION

There exist several formats for science communication. As science communication is a part of the journalistic genre, therefore, all the types of formats are equally useful for science journalism as well. In this Unit, we shall focus on science news, report, and reportage, features, and articles.

11.3 SCIENCE NEWS

News is the germinal essence of all information systems. Anything new (which is happening but never happened before), is termed as news. News connotates to highly volatile and dynamic literature. News can be classified into different types, such as political, cultural, sports, crime, science, etc.

Science news disseminates information related to all the branches of science including- physical, biological, astronomical, technological science, health, nature, etc. However, there is no general consensus on how to define science news. National Science Writers' Association of America defines that scientific news includes those newspapers and journals which dwell upon

or treat the subjects that are practiced by the scientists. This branch of journalism is broadly defined as science journalism. The scientific revolution in the 17th century led scientists to write on scientific achievements thereby establishing a relationship between science and society. Today, most scientific news is concentrated primarily on disciplines like genetics, climate change, nanotechnology, space science, cancer research, and vaccines.

United Nations Educational, Scientific and Cultural Organization (UNESCO) promotes science journalism by disseminating scientific knowledge through media and ensuring knowledge creation, acquisition and sharing through ICT along with developing strategies in the field of the sciences, in consultation with the media and facilitating journalists' networks on science journalism and sustainable development issues.

Indian Science Writers' Association (ISWA) in its code of conduct for members declares that a science journalist should be observant of the highest standards of journalism. Further, it states, the treatment of scientific controversies should include different viewpoints. Claims must be verified before printing; and premature publicity, misrepresentation and misinterpretation of a scientific finding must be avoided. Journalists normally do not wish to reveal to their sources of information, however, a science journalist, for the sake of accuracy, may show his copy to the source just to ensure that it is technically sound and that it carries the important point(s) that the source wishes to make.

Science journalism focuses on increasing public understanding and appreciation of science and thus contributing towards popularized scientific information. This essence can be well understood with a statement of prominent science writer, William Laurence of the *New York Times* who once stated that "True descendants of Prometheus, science writers take the fire from the scientific Olympus, the laboratories and the universities, and bring it down to the people".

We have discussed the elements of science news in Unit 2. Here, we shall discuss a model of science news writing (Table 11.1) put forward by Secko and co-workers (2013). According to this model, before writing a story, a science journalist should be well versed on why the story is being written (purpose), what is the focal point for discussion (focus), how the story will be presented (style), what information and which voices will be included in the story for relevance, objectivity and clarity (sourcing), for whom the story is written for (audience) and how science should be portrayed in the story (science). The perspectives on how science is portrayed (is the scientific content presenting science as a 'monster' or a 'friend'? is it dealing with the science which is beneficial to the society or is centred around politics related to science? or is it a scientific advertisement?) determines the quality of the science news. If we

link these criteria to public engagement, it becomes an effective way to achieve scientific literacy in society.

Table 11.1 Science news /story writing criteria

1.	*Purpose*	*Why* the story is being written
2.	*Focus*	*What* is the focal point of the story
3.	*Style*	*How* the story is written
4.	*Sourcing*	*What* information and *Which* voices are included in the story
5.	*Audience*	*Who* the story is written for and what role (if any) audiences play in the story
6.	*Science*	*How* science should be portrayed in the story

CHECK YOUR PROGRESS

Q. 1 : Mention about the writing criteria of science news?

_____

_____

_____

Q.2 : Who said , "True descendants of Prometheus, science writers take the fire from the scientific Olympus, the laboratories and the universities, and bring it down to the people".

_____

_____

_____

11.4 REPORT AND REPORTAGE

11.4.1 Report

A report has a wider meaning than news. Depending on the use of the word as a *verb* or *noun*, a report has different meanings. According to Oxford learners' dictionaries, while used as a *verb,* a report

(i) gives people information about something that you have heard, seen, done, etc. (Example: findings of something, reporting somebody or on something etc.).

(ii) presents a written or spoken account of an event in a newspaper, on television, etc.

(iii) can be used to show that something has been started, and you do not know if it is true or not (e.g., as per Government *report*, daily cases of COVID 19 patient has exceeded more than 3 lakhs)

(iv) tells a person in authority about a crime, an accident, an illness, etc. or about something bad that somebody has done (e.g., report to somebody: Have you reported the incident to the police?)

(v) tells somebody that you have arrived, for example for work or for a meeting with somebody (report for something example *You should report for duty at 9.30 a.m.)*

On the other hand, when it is used as a *noun*, a report is

(i) a written or spoken account of an event, especially one that is published or broadcast

(ii) spoken or written description of something containing information that somebody needs to have (a police report, a progress report).

(iii) an official document written by a group of people who have examined a particular situation or problem (example: a*ccording to the report, we are facing an obesity crisis)*

(iv) a story or piece of information that may or may not be true (example: There are unconfirmed *reports* of a shooting in the capital)

For our purpose, we can summarize that a report, in general, is a document, presented in a written form, in an organised format for a specific audience with a clear purpose. Proximity, timeliness, prominence, consequence and human interest are some of the basic characteristics of a science report like other areas of journalism.

A person who prepares a report for the media house is called a reporter. The field of reporters varies from stringer, full-fledged reporter to a correspondent. The reporter may be associated with media houses (print, electronic and web) or news agencies.

11.4.2 Reportage

Reportage is a journalistic genre that combines both news and analysis of detailed information of a subject. While news gives first-hand knowledge of an event, reportage goes deeper into it. Broadly, there are two basic types of reportage: informational and analytical. Informational reportage centre around detailed information. On the other hand, analytical reportage analyses data from various perspectives related to the subject.

Presentation of reportage depends on the type of media (newspaper, radio, television, web) you are working for. The objective of reportage is to inform and make the public aware about a recent development in detail. As such, reporters are given time (sometimes a week or longer) to cover a story, unlike a few hours for news (so that that they can be engaged with various sources, evaluate and analyse different points of view associated with a story).

In earlier times, reportage was a part of a drama, where a messenger brought detailed information of a happening (especially war) to the characters. It was and is a process of storytelling without drama in the narratives.

Reportage has proximity with the feature but unlike feature, reportage revolves around news and is considered as a part of soft journalism. Reportage deals with scientific events, exhibitions, workshops/seminars/conclave etc. For example, the magazine, Outlook India provides space for reportage separately. In a reportage, titled *Eastern Coast On High Alert As India Braces For Cyclone Yaas*, on May 24, 2021, the Outlook Web Bureau talks about (i) evacuation detail, (ii) information related to the characteristics of cyclone (example: velocity, depression and longevity of the cyclone, area affected or possible to be affected) with input from India Meteorological Department (iii) response of central and state government towards the disaster, and (iv) relating the story to a different cyclone (cyclone *Tauktae*) that happened a few days before cyclone *Yaas* and affected the states of Gujarat, Goa, Maharashtra, Karnataka and Kerala. (v) The source of the reportage is PTI. A snapshot of the reportage is shown in Figure 11.1.



Figure 11.1 A snapshot of the reportage published in Outlook (Source: https://www.outlookindia.com/website/story/india-news-eastern-cost-on-high-alert-as-india-braces-for-cyclone-yaas/383475)

If you compare this reportage with news, you may not find such extensive writing. Moreover, as we have discussed just now, the reportage is revolved around a special happening and detail information/ analysis on the news, in contrast, to provide basic information to the

public. Likewise, several blogs on the internet written by prominent science communicators, provide reportage on current issues in an interesting way.

CHECK YOUR PROGRESS

Q. 3 : Who is a reporter?

_____

_____

Q. 4: What are the different types of reportage?

_____

_____

11.5 FEATURES AND ARTICLES

Features and articles are a common occurrence in newspapers, magazines and the web. These are examples of tertiary scientific writing. Leading scientific journals focuses on good features and articles to highlight scientific development around the world. It is true that such scientific writings are difficult sometimes, but is powerful and rewarding. Simplicity, clarity, accuracy, credibility, readability is the *mantra* of influential features and articles. By influential, it is meant to be informative, stimulating, enlightening and persuasive. Features and articles combine both creativity and media elements to fascinate the reader.

11.5.1 Features

Feature is an essential part of scientific writing. There is a dedicated space for Science Feature in almost all the journals, magazines and newspapers. Many journals/magazines select the best feature stories for a year and compile them for readers. Many associations also promote journalistic science features by providing fellowships or prizes. E.g., Wellcome Trust Science Writing Prize, in association with the Guardian and the Observer in Britain. A summary of the difference between a news and a feature is tabulated below.

Characters	News	Feature
Content	Recent or never happened before	Any issues on Science and technology or human-interest story
Time	News is time-bound	Feature writers get more time for elaborate description
Style of writing	• News is always written in an inverted pyramid style. • Information is the priority for journalists • Generally, one photograph is preferred	• The feature is open to writing in narrative style, with a beginning, middle and end. • It is written in an attractive way • There may be more than one photograph in a single feature. Moreover, in photo feature, it is the photograph that speaks the story

Word limit	News has word limitations due to the constraints of space in media houses. Therefore, it is written concisely.	Feature writer can enjoy more freedom in writing than a news reporter
Mode of writing	News is devoid of opinion	Feature reflects analysis and opinion from a writer
Angle of presentation	• News is considered objective and therefore expected to reflect unitary angles. • News is, therefore, 'as it happens'	• Pluralistic angle is a characteristic of feature writing. The feature is written subjectively. • Feature, on the other hand, is, 'focus and discussions'

11.5.2 Articles

A scientific article refers to a piece of writing on a specific recent issue and is a part of newspaper, magazines or other publications along with other formats like news, feature, letters to the editor and editorials. The article is immediately related to a news item. It is elaborate and based on data.

An article demands deep research on the relevant subject. Quotation or interview can be added inside the body of an article for strong support of the writer's viewpoint. The objective of the article is to introduce the reader to a recent happening and its impact or relevance to society or human life. Articles are sometimes assisted with photographs, diagrams, tables and graphical representations to give strong shreds of evidence for arguments. Articles always reflect well built, deliberate opinion of a writer.

The article differs from features in the timing, style of writing and subject orientations. While the subject of an article is timely, the feature may not be. The article aims to provide readers with an immediate overview of a happening. On the other hand, features are aimed to attract the leisure hours of the audience.

Common guidelines for writing features and articles are:

(i) Choose a topic of current interest

(ii) Do research. Find out relevant supporting documents for establishing your opinion.

(iii) Schedule and take interviews of experts, if necessary

(iv) Visualize the outline of your write up

(v) Understand your audience. The style of writing always differs depending upon the target audience

(vi) Writing in an active voice is preferable but it depends on the policy of the media organization you are writing for. Some newspapers and magazines prefer passive voice in presenting the idea

(vii) Insert quotations and references. You may also add case studies, historical observations, and statistics if required.

(viii) Try to avoid jargon. Try to avoid the adjectives and adverbs too

(ix) Your conclusion should reflect your opinion. It may be *open-ended* (leaving a question to the audience to rethought and rediscover) or *close-ended* (reflecting only the author's opinion).

(x) Writing a good headline is significant to hook the audience. It is both an art and a skilled craft. The *introduction* is equally important to hold an audience for your write-up

(xi) Edit and revise before you send it for publication

(xii) Be creative

(xiii) Do hard work to improve yourself in every writing

11.6 SOURCES OF SCIENTIFIC INFORMATION: PRIMARY, SECONDARY AND TERTIARY

Scientific information can be classified into three broad categories depending on the style of writing. Some scientific writings are based on original research and full of technical words, some are written based on such original research for giving a generalized idea on a subject and the third category is the popular write-ups targeted primarily to the general audience. Let us understand these categories in detail.

(a) **Primary Scientific Information:** These types of information (preferably called 'paper') are the result of original research conducted by an individual by a group of individuals. These are mostly published in scholarly journals (Figure 11.2). Examples include original research articles, case reports/case series, and technical notes. Primary scientific information is considered as one of the vital sources for science reporters. Such information always follows a definite structure in writing like having -a title, abstract, keywords, introduction, methodology, results, discussion, acknowledgements and references. Such information is published after a rigorous review process by experts thereby reducing the degree of falsification of data.

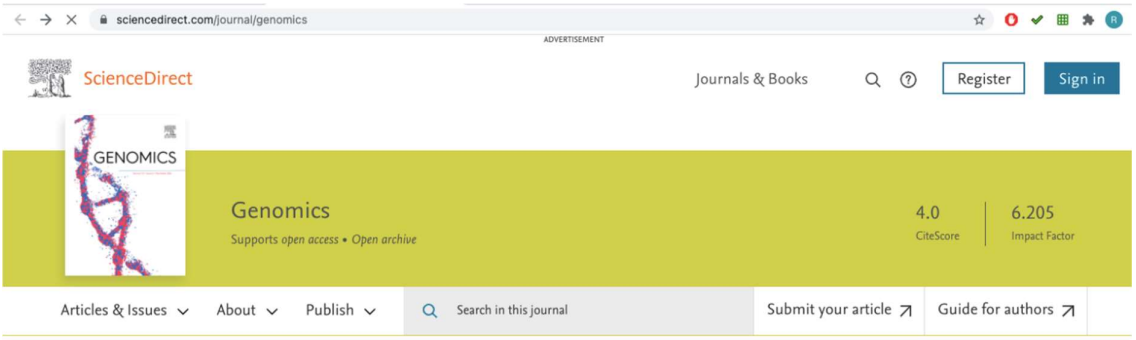


Figure 11.2 *Genomics* is a scientific journal: an example of a primary scientific information.

(b) **Secondary Scientific Articles:** Reviews, books (examples: monographs, textbooks, handbooks etc.) and other sources which rely on primary sources of information are categorised as the secondary types of articles. The objectives of such articles are to summarize information from primary sources. Such articles are useful for generating an overview of a topic. E.g., The book *Gravitation* on Albert Einstein's theory of relativity, authored by Charles W Misner, Kip S Thorne and John Archibald Wheeler is considered as a seminal textbook on Gravitation.

(c) **Tertiary or Popular Scientific Literature:** These types of articles are written in a more simplified and popular language in contrast to scientific styles with a focus on the general audience. You can find examples of tertiary or popular scientific literature in science magazines, editorials, newsletters, articles in newspapers, letters to the editor, and on the internet (examples: webpages and blogs). Popular scientific articles are consumer-friendly and contains more entertainment in the content. The craft of popular article writing includes an analytical format with an introduction at the beginning, a detailed explanation in the middle or body and a conclusion at the end supported by data or figures related to the story. The conclusion part of the article reflects the author's opinion in general.

11.7 WEAKNESS OF VARIOUS FORMATS

Various formats, discussed here are examples of communication from a person (sender) to an audience (receiver). As such different types of barriers (e.g., physical, psychological, cultural, linguistic, etc.) stands as a weakness in disseminating information. Most significantly, *perception* of individual and organisation influences on framing a message at a higher level in

comparison to other factors. As such, perception is a common weakness in almost all forms of communication. Some other weakness of the formats includes:

(a) **Time**: In the case of news, as time is short, hence, the news is written in hurry, devoid of a detailed description, opinion and emotion. In other formats, as the detailed description is *prima facie*, it takes a longer time for the total presentation. Another disadvantage is that detailed descriptions of a subject may sometimes mislead people due to overburdening of data and individual opinion in articles, features, reports and reportage.

(b) **The skill of the presenter/writer**: This is another important strength as well as weakness of communication. If the writer is not skilled in the format, he(s) is choosing to write or present. If the reporter is not well versed, the result will not be interesting and attractive for the audience.

(c) **Translation**: In science communication, translation becomes a big weakness for a new writer. Scientific terminologies, sometimes are misleading if translated by the face value of the term, without understanding the original meaning. For example, the term *satellite DNA* from molecular biology, cannot be translated as *Upogrohiyo DNA* in Assamese because of the meaning of the word satellite. In such circumstances, interest in the subject, discussion with experts, a good dictionary can help the reporter in presenting the matter correctly.

(d) **Lack of sufficient space**: In India, science write-ups are not given sufficient space in media organizations. A very few media houses provide regular space for science. Indian Science Writers' Association revealed that only 3% of total newspaper space is provided for science in India. 'Science editor' or 'science reporter' is yet to be conceived as a full-fledged journalistic profession in third world countries. Therefore, it appears as a weakness of scientific writing due to which an article or a feature may not get adequate space for justifying and arguing the rhetoric.

CHECK YOUR PROGRESS

Q. 5 : What are the *mantra* for influential feature/article?

_____

_____

Q.6: What evidences are provided in an article to give strong argument?

_____

_____

Q.6: Newspaper article is an example of …….. type of scientific writing?

_____

_____

11.8 LET US SUM UP

- Science news disseminates information related to all the branches of science including- physical, biological, astronomical, technological science, health, nature etc.
- Considering the growing need, United Nations Educational, Scientific and Cultural Organization (UNESCO) promotes science journalism
- Indian Science Writers' Association (ISWA) in its code of conduct for members declares that a science journalist should be observant of the highest standards of journalism.
- Science journalism focuses on increasing public understanding and appreciation of science and thus contributing towards popularized scientific information.
- If we link criteria of science writing (purpose, focus, style, sourcing, audience understanding and science) to public engagement, it becomes an effective way to achieve scientific literacy in society.
- The report is another format of science writing. It has a wider meaning than news.
- We can summarize that a report, in general, is a document, presented in a written form, in an organized format for a specific audience with a clear purpose and journalistic elements
- Reportage is a journalistic genre that combines both news and analysis of detailed information of a subject. It has e proximity with the feature but unlike feature, reportage revolves around news and is considered as a part of the soft journalism
- Objectives of reportage are to inform and aware public about a recent development in detail
- Features and articles are a common occurrence in newspapers, magazines and the web. Leading scientific journals focuses on good features and articles to highlight scientific development around the world.
- Scientific information can be classified into three broad categories depending on the style of writing i.e., primary, secondary and tertiary

11.9 FURTHER READING

1. Angler, M. W. (2020). *Telling Science Stories: Reporting, Crafting and Editing for Journalists and Scientists.* Routledge
2. Baron, N (2010). *Escape from the Ivory Tower: A Guide to Making Your Science Matter,* Island Press

3. Bucchi, M. & Trench, B. (2008). *Routledge Handbook of Public Communication of Science and Technology*. Ed. Routledge.
4. Dawkins, R (2008). *The Oxford Book of Modern Science Writing*, Ed. Oxford University Press
5. Hogarth, M. (2019). *Writing Feature Articles: Print, Digital and Online,* Routledge.

11.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Criteria for science news writing are: purpose, focus, style, sourcing, audience understanding and science

Ans to Q No 2: Prominent science writer William Laurence said this.

Ans to Q No 3: A person who prepares a report for a media house is called as a reporter

Ans to Q No 4: Broadly, there are two basic types of reportage: informational and analytical

Ans to Q No 5: Simplicity, clarity, accuracy, credibility, readability remain as the mantra of influential features and articles

Ans to Q No 6: Photographs, diagrams, tables and graphical representations are provided to give strong evidence for arguments in an article

Ans to Q No 7: Newspaper article is an example of the *tertiary* type of scientific writing

11.10 POSSIBLE QUESTIONS

A. Short Questions (Answer each question in about 150 words)

Q.1: Define a report?

Q 2: What are the objectives of reportage?

Q3: How feature is different from reportage?

Q4: What are the characteristics of article writing?

B. Long Questions (Answer each question in about 300-500 words)

Q. 1: State the basic differences between feature and news.

Q 2: What are the steps of writing science features or an article for beginners? Discuss.