

Змістовий модуль 4. Особливості апробації результатів науково-дослідних робіт іноземною мовою

Тема 8. Етапи проведення наукового дослідження згідно з міжнародними вимогами

Lead-in: Before reading Text 1, answer the following questions:

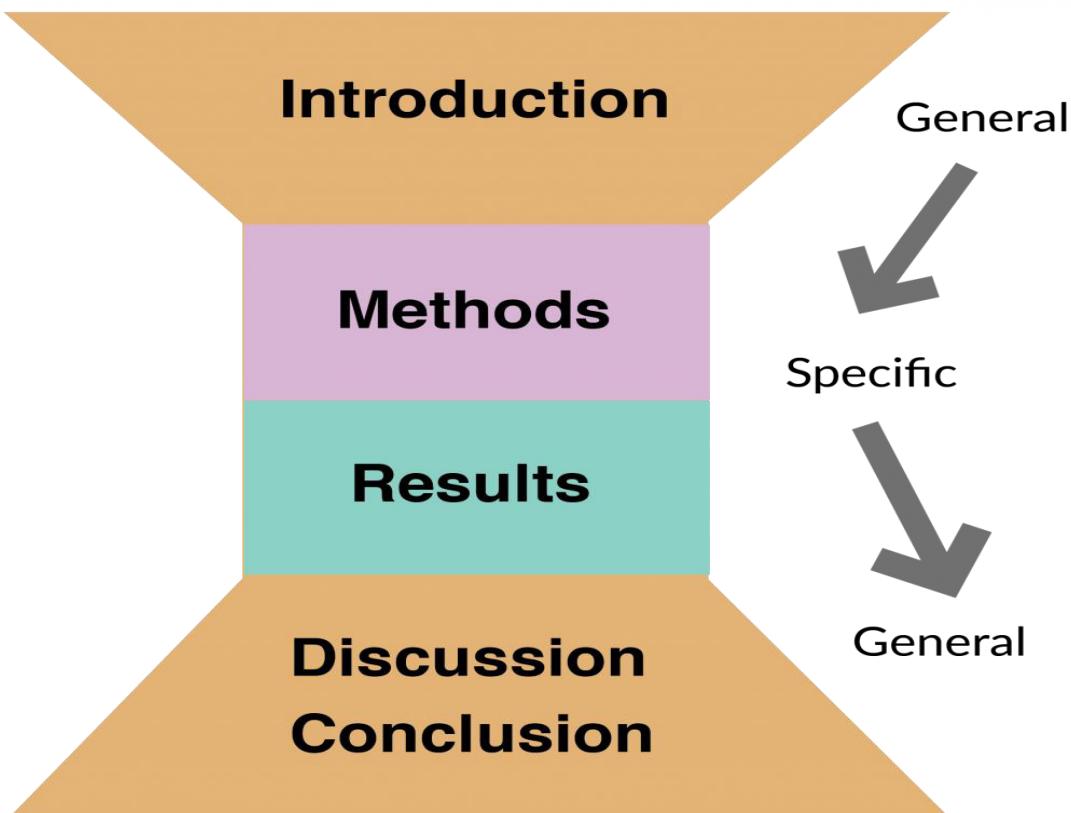
1. We often visually depict a research article with the image of an hourglass. Why do you think this image is so useful for envisioning the various sections of an RA?
2. What do you consider to be the major parts of a research article (RA)?
3. Which ones contain more general information?
4. Which ones are more specific?

 **Text 1.** Read the text and summarise the main points in 10-15 sentences.

THE SECTIONS OF A RESEARCH ARTICLE

If you have ever read or written almost any type of academic document, you might have noticed that they start with introductions and end with conclusions. However, research articles – as a genre – have other consistent sections as well. The complete list of sections for research articles include the following:

- Introduction
- Methods
- Results
- Discussion/Conclusion



Notice that the figure depicts a research article in the shape of an hourglass. That shape provides a way for us to consider which sections of a research article will be general/broad and which will be specific/narrow.

Next, we will investigate each part of a research article from a big-picture perspective. The first part – **the Introduction** – is one of the most general or broad parts of the entire article.

There are three main goals for an effective Introduction:

1. Establish a research territory that fits into the existing literature.
2. Identify a niche in the literature where your study fits.
3. Address the niche by filling the “gap” in the literature.

These goals contribute an answer to the question of why an Introduction is considered more broad or general than other parts of a research article. By establishing a territory, identifying a niche, and addressing that niche, a writer generally needs to focus on the bigger picture, the problem, and a potential solution.

The middle part – **the Methods and Results sections** – are the most narrow, or specific, areas of the entire article. As you move away from the Introduction, your content will start to become more and more specific, reaching its most specific point in the Methods and Results sections.

There are three main goals for an effective Methods section:

1. Contextualize the study’s methods;
2. Describe the study;
3. Analyze the data.

These goals attempt to explain to the reader – in a very detailed fashion – how the study was carried out. Specificity is of utmost importance in this section, and one way to think about how specific the content should be is to imagine that someone is reading your Methods section with the purpose of replicating your research. Would they be able to conduct this same study based on what you have written in this section? You want the answer to be YES. Thus, by contextualizing, describing, and analyzing, you can explain to the reader exactly what, when, where, and how you did what you did.

The use of a separate **Results section** varies by discipline (field) and journal. Some disciplines utilize a section for presenting results and another section for discussing those results while others integrate the findings with an interpretation of those findings, which is called the “**Discussion**.”

The Results section tends to be one of the shorter sections of the paper. This is because successful research writers present only the findings that are the most representative. Those findings are then organized according to the research questions or hypotheses outlined in previous sections of the manuscript. Results can be reported as text, tables, figures, or all three.

The Results section aims at achieving four main communicative goals:

1. Approaching the niche
2. Occupying the niche
3. Construing the niche
4. Expanding the niche

Remember that *Niche* is the area of the research where you have identified a need, problem, or gap. Your Introduction identified and addressed the niche, your Methods section provided the procedures for investigating that niche, and now, in the Results section, you're going to provide the answers to your questions by reporting your findings.

As noted above, there is variation in how writers, journals, and disciplines choose to organize/structure a manuscript. In some cases, **the Results and Discussion** sections are combined and **the Conclusion** stands alone. In other cases, the Results stand alone, and **the Discussion and Conclusion** section is combined.

Sometimes the research itself (the topic/content) drives a researcher's decision to adopt one structural pattern or the other. Moreover, there are times when the discipline or the journal tends toward one or the other. It's your job as a researcher to know which option is the best by taking into account all of the stakeholders as well as your own style preferences.

The following is a list of the goals for finalizing your article:

1. Re-establish the territory
2. Frame the principal findings
3. Reshape the territory
4. Establish additional territory.

Through these goals, writers provide readers with extended analyses and interpretations of the results by evaluating their implications and situating them within the existing literature. While the two specific middle sections of a research paper focus mainly on what is happening inside the research project, the Discussion/Conclusion section tends to expand the meaning beyond or outside of the research at hand. In other words, writers must indicate how the results add or relate to existing knowledge within the discipline, which points out the value of the work. The final section of the manuscript is also the last aspect of your work that your readers will examine, so it must convincingly finalize the scientific argument that has been unfolding through each section.

(Adapted from *Preparing to Publish* by Sarah Huffman, Elena Cotos, and Kimberly Becker. URL: <https://open.umn.edu/opentextbooks/textbooks/preparing-to-publish>)

Assignment 1. Find the Ukrainian equivalents for the following English scientific terms and word-combinations from Text 1. Use these terms to write 5 sentences about the research.

| | English | Ukrainian |
|---|-----------------------|-----------|
| 1 | contextualize | |
| 2 | in a detailed fashion | |
| 3 | replicate | |
| 4 | findings | |
| 5 | approach the issue | |
| 6 | construe | |

| | | |
|----|----------------------------------|--|
| 7 | expand | |
| 8 | provide the answer | |
| 9 | relate to the existing knowledge | |
| 10 | frame the findings | |

☞ **Assignment 2.** Match the words and word-combinations from Text 1 with their Ukrainian equivalents.

| | | | |
|----|--|---|--|
| 1 | Розширений аналіз | a | Situate within the research |
| 2 | Оцінюючи наслідки | b | Tend to expand the meaning |
| 3 | Росташувати в дослідженні | c | The research at hand |
| 4 | Прагне розширити значення | d | Convincingly finalize |
| 5 | Вказувати на значення | e | Extended analysis |
| 6 | Поточне дослідження | f | Fill the gap |
| 7 | Переконливо завершувати | g | Report the findings. |
| 8 | Заповнити пробіл | h | Point out the value |
| 9 | Брати до уваги всі зацікавлені сторони | i | Evaluating the implications |
| 10 | Повідомити про отримані дані | j | Take into account all the stakeholders |

Assignment 3. Choose the sentence (a or b) that gives the information in the most reader-friendly order, i.e. that enables the reader to quickly assimilate the information contained in the sentence.

- (1a) Control procedures: There are basically four procedures: up-shift, down-shift, neutral and start.
- (1b) Control procedures: These procedures are basically four: namely up-shift, down-shift, neutral and start.
- (2a) A known amount of the standard solution was added to the organic extracts, which were then stored in glass containers until their arrival at the lab.
- (2b) The organic extracts were added with a known amount of the standard solution and stored in glass containers until their arrival at the lab.
- (3a) These factors have, until now, been considered as irrelevant.
- (3b) Until now these factors have been considered as irrelevant.
- (4a) The presence of possibly undetected components was tested by Gas chromatography–mass spectrometry.
- (4b) Gas chromatography–mass spectrometry was used to test for the presence of possibly undetected components.
- (5a) Over the last 20 years, several exhibitions of the artists whose organization was carried out with the sponsorship of local banks have been set up.
- (5b) Over the last 20 years, several exhibitions of the artists have been set up and organized with the sponsorship of local banks.
- (6a) We present a method for screening, evaluating and comparing wood samples in a short time frame.
- (6b) We present a method for screening, evaluating and the comparing in short time frame wood samples.
- (7a) The most common approach is to analyze cross sections at different depths using optical and electron microscopy.
- (7b) The most common approach is to analyze, using optical and electron microscopy, cross sections at different depths.

Assignment 4. Divide up these sentences into more manageable and shorter sentences that will help the reader understand the content better. You may need to rearrange the word order and / or delete unnecessary words.

Example

ORIGINAL The seeds, sterilised for 3 min. in NaOCl (1% available chlorine) and rinsed with distilled water, were germinated on moist filter paper (Whatman No. 2) in Petri dishes and grown in the dark at 23 °C till 72 hours.

REVISED The seeds were sterilised for 3 min. in NaOCl (1% available chlorine), and rinsed with distilled water. They were then germinated on moist filter paper (Whatman No. 2) in Petri dishes and grown in the dark at 23 °C.

1. Using automatic translation software (e.g. Google Translate, Babelfish, and Systran) can considerably ease the work of researchers when they need to translate documents thus saving them money (for example the fee they might have otherwise had to pay to a professional translator) and increasing the amount of time they have to spend in the laboratory rather than at the computer.
2. In order to establish a relationship between document length and level of bureaucracy in European countries and to confirm whether documents, such as reports regarding legislative and administrative issues, vary substantially in length from one language to another, we conducted an analysis of A, B and C.
3. The aim of our study was to assess changes in the level of tolerance of natives of one country towards immigrants over the course of a 50-year period in order to be able to advise governmental agencies on how to develop strategies based on those countries that have been more successful in reducing racism as already investigated in previous studies, but not in such a systematic way, and to establish correlations with data from the USA, which until now have been reported only sporadically.
4. Monolithic sorbent tip technology has proved to be efficient in removing interferences from copper and mercury salts, but it has not been tested for other materials and the recovery of proteinaceous material is often too small, giving rise to analysis problems.
5. Our results show that the performance of the system, in terms of throughput and delay, depends on several factors including the frame duration, the mechanisms for requesting uplink bandwidth, and the load partitioning, i.e. the way traffic is distributed, connections, and traffic sources within each connection.

Assignment 5. Put these four extracts from the Conclusions of a paper into a logical order.

- (a) As international scientific English becomes the preserve increasingly of the non-native speaker, as it will do if English continues its path towards greater and greater dominance of the world of science, then the same thing will happen to scientific English as has happened to general Englishes. We will see the rise of varieties of scientific English or 'Scientific Englishes' which will deviate more or less from the standard.
- (b) If English is now the preferred language of international communication in science, then within the sphere of scientific communication, English should be seen as what it is, the language of science, not the language of Englishmen or Americans.
- (c) Where that style is a function of the needs of the genre and acts positively to communicate the science more effectively, then it should be respected. Where it is simply a matter of preferred native-speaker style, it can safely be ignored. The owners of international scientific English should be international scientists not Englishmen or Americans.
- (d) In conclusion, therefore, I would argue that non-native speakers of English who communicate their science in English should not feel any sense of inferiority vis-a-vis the native speaker in this respect. The overriding framework in determining how to communicate should be the science itself, rather than the rhetorical style of the language.

Assignment 6. Write five or six sentences about the research you are currently carrying out. If you have not started your research, imagine that you have. Write short sentences, as in the example below:

We investigated the meaning of life.
We used four different methodologies.
Each methodology gave contradictory results.
The results confirmed previous research indicating that we understand absolutely nothing.
Future research will investigate something more simple – the cerebral life of a PhD student.

Assignment 7. Write five or six sentences on one or more of the following topics. Each sentence should contain a maximum of 20 words.

1. How has the role of women changed in your society in the last 50 years?
2. Should government funding of 'less practical' research areas, such as philosophy, history and theology, be cut?
3. All academic books should be free. Discuss.
4. Your ideal teacher / professor.
5. The downsides of the Internet.

Assignment 8. Analyze this extract, which is the beginning of a new section in a writing manual produced by NASA. How is each sentence linked to the previous one? The underlined words should help you to reveal the writer's structure.

Paragraph 1: The length of a sentence should generally not exceed about 35 words. Any sentence presents readers with the task of first identifying its constituent phrases, and then bearing them all in mind while their logical interrelation crystallizes. Forcing readers to bear in mind and fit together more than about 10 phrases* (each of about three words) is unnecessarily cruel. Your English instructor's joy at your ability to compose grammatically correct 200-word sentences must be disregarded as against your present goal of simplifying your reader's job.

Paragraph 2: An equally important rule is that a sentence should generally contain some indication as to how it is related to the preceding sentence or to the development of the paragraph.

*

Assignment 9. Note how in the previous exercise the author did not use any link words in his paragraph. Instead, ideas are connected together by a logical progression of ideas. Look at the same extract, which this time includes link words. Do they add anything to facilitate your understanding of the text, or do they just distract you?

It is worthwhile noting that the length of a sentence should generally not exceed about 35 words. ***In fact***, any sentence presents readers with the task of first identifying its constituent phrases, and then, ***as a consequence***, bearing them all in mind while their logical interrelation crystallizes. ***In addition***, forcing readers to bear in mind and fit together more than about 10 phrases (each of about three words) is unnecessarily cruel. ***Moreover, as far as technical writing is concerned***, your English instructor's joy at your ability to compose grammatically correct 200-word sentences must be disregarded as against your present goal of simplifying your reader's job.

Of course, it goes without saying that an equally important rule is that a sentence should generally contain some indication as to how it is related to the preceding sentence or to the development of the paragraph.

Assignment 10. The link words used in the previous exercise are all redundant. This is not always the case, as you can see from another paragraph written by the same author. Decide what role these three link words play.

Different writers have different methods of organizing their reports, and some seem to have no discernible method at all. Most of the better writers, **however**, appear to be in remarkably close agreement as to the general approach to organization. This approach consists of stating the problem, describing the method of attack, developing the results, discussing the results, and summarizing the conclusions. You may feel that this type of organization is obvious, logical, and natural. **Nevertheless**, it is not universally accepted. **For example**, many writers present results and conclusions near the beginning, and describe the derivation of these results in subsequent sections.

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