

ACADEMIC WRITING IN THE DIGITAL ERA: FROM CLASSICAL RHETORIC TO ARTIFICIAL INTELLIGENCE

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Abstract: The paper examines the place of academic writing in the digital age, that is, the connection of the classical rhetorical tradition with contemporary technological challenges. Academic writing is not a technical process, but a process of clear expression of thoughts, ideas, proper arrangement of arguments, research of sources of information, as well as the correct use of vocabulary. For these reasons, certain positions of Quintilian, Cicero, and Augustine Aurelius are highlighted and analyzed. Quintilian's ideas about the gradual shaping of thought, words, language, and personality, especially through learning, practice, and discipline, have significant application in academic writing. Cicero emphasizes with special attention the order and arrangement of facts and arguments, as well as the significance of the introduction. Understanding the role of the introduction can be brought into relation with its role in contemporary academic writing. The introduction is a mandatory and initial part of any scientific work, including texts prepared for academic purposes, such as essays, seminar papers, diploma papers, master's theses and doctoral dissertations. Its main function is to introduce the reader to the problem being addressed, to indicate the content and purpose of the work and to stimulate interest in further reading. Augustine Aurelius, through the dialogical debate with his son Adeodate, develops the debate about speech, i.e. the relationship between the word, the sign and the understanding that leads to thought. Augustine Aurelius draws a sharp line between knowledge and the sign, emphasizes the role of the teacher and words in the learning process. Academic writing in the digital age should be considered through changes in the conditions of access, processing and use of scientific information. The paper focuses on academic writing in the age of digitalization, particularly by highlighting issues of scientific information, information literacy, citation, academic integrity, and the use of artificial intelligence. Academic writing in the age of digitalization should be understood as a blend of classical rhetorical principles and contemporary digital competencies. Clarity, order, argument, understanding, and academic honesty remain the foundation of any quality text. Digital tools can be a useful support, but they must not replace the intellectual work of the author, they must not replace authorial responsibility, critical thinking, checking sources, and personal academic contribution.

Keywords: academic writing, classical rhetoric, digital age, information literacy, academic integrity, artificial intelligence.

1. THE CLASSICAL RHETORICAL TRADITION AS THE BASIS OF ACADEMIC WRITING

The ability to express thoughts, ideas, and opinions in written form is very important for any profession. Therefore, students are encouraged to master the basic techniques and methodological rules of writing during their studies through writing academic texts. Writing is not complicated, but it includes a whole range of skills and abilities that are formed over a certain period of time. After mastering the basic principles, writing is learned through practice. Through repetition of writing, skills for exploring thoughts, forming ideas, and sharpening words and phrases are developed (Kuba & Koking, 2004, p.11).

This kind of thinking is not at all new to the classical rhetorical tradition. Within this tradition, a particularly important place belongs to Quintilian and his work *Institutio Oratoria*. Quintilian understands rhetoric as an integral part of a broader educational process, and not just as a skill of speaking. He points out that “boys commonly show promise of many accomplishments”, but when that hope disappears, it is “due not to the failure of natural gifts, but to lack of the requisite care” (*Institutio Oratoria*, I.1.2). An experienced teacher needs to understand his natural abilities. The gradual shaping of thought, words, language and personality, especially through learning, practice and discipline, as Quintilian's ideas, have significant application in academic writing. Regarding the dilemma of the relationship between “natural gift” (*ingenium*) and science (*ars`doctrina*), Quintilian emphasizes that nature is the material that is processed by art. Art without material is nothing, and material without art is still something, but perfect art is more important than even the best material. Another significant element that is brought into connection with modern academic writing is found in Quintilian's thinking about clarity of expression. According to him, clarity is the first condition of good style: “clearness [is] the first essential of a good style”, whereby the words should be

appropriate, the order correct, the conclusion not delayed too long, and the expression should be free from either deficiency or redundancy (*Institutio Oratoria*, VIII.2.22)". Quintilian also clearly emphasizes the ethical dimension in relation to rhetorical education. The speaker he wants to educate is defined according to Cato's formula as "a good man, skilled in speaking" (*vir bonus dicendi peritus*) (*Institutio oratoria*, XII.1.1).

If Quintilian's rhetorical thought remains, after so many centuries, the foundation for modern academic writing, which is particularly emphasized through the ideas of education, practice, and clarity of expression, in Cicero the relationship between knowledge and discourse comes to the forefront. For these reasons, the orator should know how to speak reasonably, orderly, and appropriately on every subject: "... If, therefore, someone wants to determine and encompass the complete and particular essence of the orator, then, in my opinion, an orator worthy of such an exalted name should be considered one who, on any subject that comes before him and requires rhetorical elaboration, can speak reasonably, orderly, elegantly, from memory, and with dignity in his presentation. But if the expression I have used — 'on any subject' — seems too broad to anyone, let him limit it as much as he likes; nevertheless, I will maintain the opinion that, although the orator does not know what belongs to other skills and occupations and understands only what pertains to debates and the practice of the forum, nevertheless, if he has to speak about those skills, then, after learning from those who really know them what is essential about them, he will be able to speak about them much better than the people themselves to whom those skills are given. are the immediate area (*De Oratore*, I.64–65)".

Cicero emphasizes the order and arrangement of facts and arguments with particular attention. In *De Oratore* he emphasizes that before proceeding to the disputed issue, one should first win the favor of the audience, then present the facts, establish the subject of the argument, support one's own position, refute the arguments of the opposing side, and, finally, in the concluding part, strengthen what is in favor of one's own position and weaken the opposing arguments (*De Oratore*, I.143).

Regarding the introduction as the most important and functional element in the presentation, Cicero emphasizes "But the introduction should not be sought outside the subject, nor in something unrelated to it, but should arise from the very essence of the case". Further adding that "Therefore, only after the whole subject has been considered and examined, and after each argument has been thought out and prepared, should one decide what kind of introduction to use". According to Cicero, the introduction should not appear as something that is just stuck on but "...as a harmonious part of the whole" and "...as an organ connected to the body" (*De Oratore*, II.318-325).

This understanding of the introduction can be related to its role in contemporary academic writing. The introduction is a mandatory and initial part of any scientific work, including texts prepared for academic purposes, such as essays, term papers, diploma papers, master's theses and doctoral dissertations. Its main function is to introduce the reader to the problem being addressed, to indicate the content and purpose of the work and to stimulate interest in further reading. Therefore, the introduction should be clear, informative and appropriate to the scope and nature of the work (Efremovski, 2015, p.152). The relationship between the conciseness, clarity and persuasiveness of the text is one of the most important issues in academic writing. In this context, we highlight Cicero's warning that excessive brevity, although sometimes justified, is often harmful, especially when it creates ambiguity and undermines the persuasiveness of the presentation (*De Oratore*, II.326). Ambiguity in the narrative part "spreads darkness over the whole speech" (*De Oratore*, II.329). According to Cicero, "your narrative will be clear, if it be given in ordinary language, with adherence to the order of time and without interruption" (*De Oratore*, II.330).

Cicero emphasizes that the determination of the subject is the basis for everything that follows in the speech, noting that this is the place where the disputed issue should be indicated, and the main foundations of the case should be presented, so that one's own arguments will be strengthened, and the opposing ones will be weakened. We contrast this thinking of Cicero with contemporary methodological understandings of the structure of the main part. In this regard, the development of the topic — with the exception of the introduction and conclusion — is divided into a historical-theoretical, analytical-experimental, and perspective part. Regarding the conclusion, according to Cicero, it is a place of rounding off and reinforcing the main points. "The conclusion actually represents a systematic, precise and concise synthesis of all relevant knowledge, information, attitudes, scientific facts, theory and laws presented in the analytical part of the scientific work" (Zelenika, 2000, in Efremovski, 2015, pp.154 -157).

Augustine Aurelius, through the dialogical debate with his son Adeodatus in "*De magistro*" (*The Teacher*), develops the debate about speech, i.e. the relationship between the word, the sign and the understanding that leads to thought. At the beginning of the book *De magistro*, Augustine asks the question: "What would you say we are trying to do whenever we speak?" (*De magistro*, I.1). — regarding the purpose of speech. Adeodatus' answer (initially) is "we want either to teach or to learn" (*De magistro*, I.1), and then Augustine directs the debate towards the position that "our aim in speaking is simply to teach" (*De magistro*, I.1). In this dialogue, an expansion is made through recalling, i.e. with "a form of teaching by way of recalling" (*De magistro*, I.1). In this section, we can especially highlight

Augustine's words that when a person speaks, he "gives an outward sign of what he wants by means of an articulated sound" (De magistro, I.2).

The dialogical debate between Augustine and Adeodates continues with the question of the sign nature of words. To the question "Do we agree then that words are signs?", Adeodates answers: "We do" (De magistro, II.3). Thus the word is understood as a sign that should point to something and not as an empty linguistic form, because Augustine immediately asks: "can there be a sign unless it signifies something?" (De magistro, II.3), Adeodates answers: "No" (De magistro, II.3). In Adeo's attempt to replace one word with another with a similar meaning, Augustine warns: "you have been explaining words by words, that is, signs by signs" (De magistro, II.4), and then adds that he is looking for the thing itself "which is signified by these two signs" (De magistro, II.4).

Augustine Aurelius in the work De magistro in chapter X.33, draws a sharp line between knowledge and sign. Augustine points out that "nothing is learned by means of its signs" (De magistro, X.33), that is, that the sign by itself cannot create knowledge of the thing it signifies. If a person does not know the reality to which the sign refers, the sign cannot truly teach him; and if the thing is already known to him, then through the sign he does not learn the thing, but recognizes the sign as its sign. Therefore, Augustine concludes that "it is more of a matter of the sign being learned from the thing we know, than it is of knowing the thing itself from the manifestation of its sign" (De magistro, X.33). In chapter XIV of the work De magistro, Augustine emphasizes the role of the teacher and words in the learning process. Teachers use words to explain the content they teach, but the student should not passively receive those words. On the contrary, "those who are known as pupils reflect within themselves whether what has been said is true" (De magistro, XIV.45). Learning is thus understood as a process of checking and acquiring meaning, and not as a mechanical reception of someone else's speech. For these reasons, Augustine warns that "we must not ascribe more importance to words than is their due" (De magistro, XIV.46). At the end of the dialogical discussion, Adeodates concludes that "words merely stimulate a man to learn" (De magistro, XIV.46). In fact, words should not be understood as a source of knowledge in themselves, but as an incentive to learning and understanding. This kind of thinking by Augustine can be linked to academic writing, where the word, the concept and the quotation should not function as empty signs, but as something that points to an understood meaning. In an academic text, communication is achieved on two levels. On the one hand, the author communicates with the reader through the written word, striving to clearly present his own thought. On the other hand, through references, call-out notes and quotations, he enters into a dialogue with the ideas, research and arguments of other authors. Therefore, referring to sources is not only a technical procedure, but also an expression of academic responsibility: it acknowledges the intellectual contribution of the authors on whose ideas, findings or formulations the text is based. Hence the need for clear and structured rules for quoting and referencing, which enable precise tracking of sources and responsible incorporation of someone else's thought into one's own academic argument.

2. ACADEMIC WRITING IN THE DIGITAL ERA

2.1. Scientific information and information literacy

Academic writing in the digital age should be considered through changes in the conditions of access, processing and use of scientific information. Scientific information is the basic content of academic communication, it contains the sum of the organized knowledge and experience of scientists, resulting from scientific research work (Bordens, Abbot, 1991 in Ефремовски, p.59, 2015). Scientific information is written to be read and understood, because it is a way of communication between scientists, a way of exchanging information between them (Silobrić, 2003, in Ефремовски, p.60, 2015).

The digital availability of scientific information does not reduce the need for clear criteria for the scientificity of research. On the contrary, it makes the need for a clearly defined subject, verifiability and responsible use of sources even more important. According to Umberto Eco (1999, pp. 45-51), a research is scientific when it meets the following requirements: it concerns a subject that is known and defined in a way that is known to others; it says what has not yet been said, that is, its subject, or it looks at what has already been said from a different angle; it is useful to others; and it indicates the basic materials for checking the thesis it defends, as well as providing materials so that others can continue the research.

In such a process, the author of the academic text cannot work without information, but needs to draw it from various documents, publications and sources. Books, monographs, collections, dissertations and other publications traditionally appear as carriers of scientific information. The space of carriers of scientific information is expanding with the development of electronic media, the Internet, digital libraries and specialized databases. Scientific information with the development of the Internet is becoming more quickly accessible, easier to search and more widely connected, but at the same time it requires a greater ability for critical assessment, selection and responsible use.

In the context of the digital availability of a large number of sources, information literacy gains particular importance. It is not limited to the ability to find information, but rather to recognize the need for information, its evaluation and effective use in a specific academic context. The Information Literacy Standards for Higher Education (ACRL) published in 2000 state that an information literate student should be able to: determine the nature and scope of the information needed; access information efficiently and effectively; critically evaluate information and its sources and include selected information in their knowledge base and value system; individually or as a member of a group, effectively use information to accomplish a specific task; understand most of the economic, legal and social issues related to the use of information, access to it and use it ethically and legally (Ефремовски, p. 58, 2015). Information literacy is becoming one of the basic prerequisites for quality academic writing in the digital age, especially towards the issue of responsible use of sources.

2.2. Responsible use of sources, citation and academic honesty

In the process of writing an academic work, a paper, it is not enough for the author to simply find relevant information; it is also necessary to understand that information correctly, critically evaluate it and clearly indicate its origin in the own text.

The responsible use of sources in academic writing is expressed through the scientific apparatus of the paper. It represents the documentary basis of the paper, which allows readers to access the sources of the literature that was used, i.e. used, in the process of creating the work or paper. The scientific apparatus is most often expressed through quotations, reference notes, paraphrasing, as well as through the final section in which the used literature or bibliography is listed (Ефремовски, p. 208, 2015). In this sense, citation is the introduction of other people's words, thoughts, ideas, concepts or expressions into one's own academic text, but in a way that clearly shows their origin. The reasons for citing can be divided into three groups: 1. Creating a basis for verification of one's own and others' results; 2. Citations for adequate explanation of one's own results; 3. Citations that constitute the group of acceptance or opposition to/or facts of other authors (Sarić, 2002 in Ефремовски, 2015).

In academic writing, it is necessary to respect and know the role of ethics in the process of research, writing and publishing scientific work. It is necessary to take into account and apply the ethics of the scientific community, moral norms in science, ethics in research, as well as ethical issues. If classical rhetoric required a morally responsible speaker, then the digital age requires a morally responsible author who knows how to use AI without abandoning his own intellectual responsibility. In the digital age, this issue becomes even more sensitive, because electronic sources, online publications and easy downloading of texts increase the risk of uncritical use of other people's content. Therefore, correct citation, paraphrasing and referencing are necessary not only for the technical orderliness of the paper, but also for preserving academic integrity.

Academic integrity is a broader value framework for academic writing and research. Academic integrity is based on six core values: honesty, trust, fairness, respect, responsibility, and courage. More than abstract principles, core values serve to guide and promote the capacity for ethical decision-making and behavior. They enable academic communities to translate ideals into action (ICAI, 2021).

3. ARTIFICIAL INTELLIGENCE (AI) AND ACADEMIC WRITING

Rilke's thought "the future enters us... long before it becomes reality" (Efremovski, 2023) is a mirror of the application of the digital age: AI is not only changing the way we write, but also the way we write, apply knowledge and express responsibility. The ideas of classical rhetoric do not represent an abandoned past, but a basic basis through which contemporary technological processes can be critically understood. The use of AI cannot replace authorial responsibility, critical thinking, checking sources and understanding the content.

In 2025, a group of authors conducted a systematic research aimed at examining the scientific literature published on digital reading and writing in higher education in the field of social sciences, with the support of generative artificial intelligence. (Sanz-Tejeda et al., 2025). The results revealed a clear tendency towards integrating artificial intelligence tools — especially ChatGPT — into academic writing processes. The authors point out that "a significant improvement was observed in the quality of student texts, especially in terms of coherence, discursive organization, lexical richness and argumentation..." The role of AI in formative feedback, idea generation, paraphrasing and encouraging student autonomy in self-editing their own texts is highlighted.

The authors, at the same time, "warn of certain challenges such as overreliance on AI, reduced metacognitive engagement, and ethical dilemmas related to plagiarism and authorship." In this regard, Bittle (2025) points out that "GenAI can enhance educational engagement and efficiency, [but] it also poses significant risks of academic dishonesty." On the other hand, Chan and Colloton (2024, p.249) point out that the emergence of AI and generative AI significantly expands the resources available to graduate students, their mentors, and examiners. Students can use these tools as advisors and mentors in order to deepen their understanding of chosen research areas. They can use generative AI to summarize scientific papers, understand key concepts, connect ideas to theories, and better

understand how those theories relate to their own research. Generative AI can also assist students in the writing process, especially when formatting references, grammar, spelling, as well as improving clarity and academic writing style.

The Australian Tertiary Education Quality and Standards Agency (TEQSA) warns that “students may use generative AI in assessment tasks, calling into question their personal learning attainment” (TEQSA, 2023, p. 1). The document states that “it appears almost impossible to detect if these technologies have been used” (TEQSA, 2023, p.1). This shows that the main problem is not only in the use of AI itself, but in whether the academic text really demonstrates the knowledge, understanding and independent work of the student. Therefore, in academic writing, the use of AI should be associated with clear rules, personal responsibility and the ability of the student to explain and defend what he has written. Lodge et al. (2024, p.1) warn that the inappropriate use of AI poses “a serious immediate risk to academic integrity”. The question of the use of artificial intelligence in academic writing by students should not be reduced to the use of digital tools alone. It is necessary to ask another important question, which is – what is the role of the teacher in developing critical, ethical and responsible use of AI in higher education?

4. MODERN EDUCATION AND THE ROLE OF THE TEACHER IN THE DIGITAL ERA

If the classical rhetorical tradition emphasizes the role of the teacher in the educational process — as one who not only transmits knowledge, but also guides the student towards clarity, understanding, correct reasoning and responsible use of the word — then in the digital age this role does not disappear, but acquires a new meaning. Chan and Colloton emphasize that university teachers should possess at least an intermediate level of technical competence in the application of AI, in order to better understand and use these technologies in teaching, learning and research. Based on the DAILM model, additional aspects of literacy needed for university teachers are expected to be: (1) pedagogical innovation; (2) ethical, social and political awareness; (3) AI for the common good; (4) alignment with career and industry; (5) continuous professional development; (6) research and scholarly engagement; and (7) responsible use and development of AI (Chan & Colloton, 2024, p. 36).

UNESCO (2024) through the Competence Framework for Artificial Intelligence (AI) offers a global vision that describes the skills and knowledge required for teachers to effectively integrate artificial intelligence (AI) into their teaching practices. The framework highlights the need to redefine the roles and required competences of teachers in terms of strengthening training and building capacities to prepare for working with AI. According to UNESCO research (2024, 2023a) only seven countries had developed AI frameworks or programmes for teachers in 2022.

The AI competency framework for teachers is presented through a two-dimensional matrix: five aspects of competence that are developed through three levels of progression. The first dimension encompasses the five aspects of AI competency. The aspects of competence are interrelated key elements of knowledge, skills, values and attitudes that teachers need to develop to effectively and ethically integrate AI into their teaching practices, in facilitating learning and in professional development. These five aspects are human-centred mindset, AI ethics, AI foundations and applications, AI pedagogy and AI for professional development. Although each aspect represents a unique component of AI competency, the aspects are related to each other because they are complementary, interdependent and synergistic. Their connection contributes to the cohesive growth of AI competency. (UNESCO, 2024, p. 21).

5. CONCLUSION

The classical rhetorical tradition, through its basic principles, still represents a pillar of academic writing in the digital environment. The lesson, the exercise and the clarity of expression are emphasized in Quintilian. The order, the arrangement of facts and arguments, the introduction and the conclusion are characteristic of Cicero. The relationship between the word, the sign, the meaning and the understanding in Augustine. The prominent rhetorical principles clearly emphasize what an academic text should be.

In the era of digitalization, the principles have not changed and have not lost their own value, but have been set in the new conditions brought by the new time. They become increasingly important if we take into account the quick access to all types of information/scientific and databases. However, we do not need only literacy, but also information literacy. Information should be carefully selected, checked, understood and finally correctly integrated into the text we write. Information literacy, proper citation, scientific rigor, and academic integrity are becoming essential elements of contemporary academic writing.

AI can be a useful tool in the writing process, especially when editing language, getting initial directions, structuring a text, or checking clarity of expression. However, its use cannot replace authorial responsibility, critical thinking, checking sources, and understanding the content.

Academic writing in the digital age should be understood as a blend of classical rhetorical principles and contemporary digital competencies. Clarity, order, argument, understanding, and academic honesty remain the

foundation of any quality text. Digital tools can be a useful support, but they must not replace the intellectual work of the author. Teachers should have at least an intermediate level of technical competence in the application of AI, in order to better understand and use these technologies in teaching, learning, and research.

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