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EDITORIAL

It is with great pleasure and deep appreciation that we introduce the third issue of Acta Anglica Tyrnaviensia. As the journal continues to strengthen its position within the academic community, we are mindful that such growth is never the work of an institution alone, but of dedicated individuals whose vision, perseverance, and commitment have shaped its course. Among these individuals, doc. PhDr. Adela Böhmerová, CSc., MA. holds a place of singular importance. From the earliest conceptual discussions to the careful shaping of the journal's profile, she has been a driving force behind *Acta Anglica Tyrnaviensia*. Her indisputable merit lies not only in conceiving the idea of the journal but in transforming it into a respected scholarly platform through persistent and meticulous work. It is to her credit that the journal emerged despite initial scepticism. She refused to be discouraged by doubt, instead choosing to confront and overcome every administrative and procedural obstacle that stood in her way. Her steady determination established the foundation upon which the Department of British and American Studies of the Faculty of Arts at the University of Ss. Cyril and Methodius in Trnava can further develop its scholarly and professional aspirations.

Under her leadership, the journal has cultivated high qualitative parameters, setting rigorous academic standards for contributions, peer review, and editorial practice. These standards have not only ensured the credibility of *Acta Anglica Tyrnaviensia* but have also fostered its role as a space for the exchange of ideas, interdisciplinary dialogue, and the dissemination of research in the fields of British and American studies.

On behalf of the editorial team and the wider academic community, we express our sincere gratitude to doc. PhDr. Adela Böhmerová, CSc., for her invaluable contributions. This third issue stands as a testament to her vision, her resilience, and her unwavering belief in the value of scholarly work carried out with integrity and excellence. We trust that our readers will find in these pages both the academic rigour and the spirit of dedication that have characterised the journal since its inception - qualities that we owe, in large measure, to her efforts.

Journal Editorial Team

Overview of Methodological Approaches to Intercultural Communication Research

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Abstract

This article provides a critical overview of methodological approaches in the field of intercultural communication, focusing on the interplay between research paradigms and epistemological orientations. Adopting a literature review methodology, the study synthesizes key scholarly contributions across the various paradigms. The analysis reveals a growing methodological plurality and highlights the epistemological tensions that underpin the field. Special attention is paid to Martin and Nakayama's perspectives. The findings suggest that intercultural communication research is increasingly embracing methodological hybridity and interdisciplinary perspective, pointing to the need for dialectic, multidisciplinary, and paradigm-conscious approaches in future studies.

***Keywords**: Intercultural communication, Methodology, Research, Paradigm*

1 Introduction

Intercultural communication research has always been rather heterogeneous in methodology. It can be considered multidisciplinary and contextually bound. Nevertheless, there is an underlying aim of all the research, i.e. how to communicate effectively in an intercultural setting. Given the conceptual nature of the inquiry and the focus on theoretical and methodological frameworks, a literature review methodology has been selected as the most appropriate strategy. This approach is grounded in the recognition that intercultural communication is a diverse and interdisciplinary field, drawing on insights from sociology, anthropology, linguistics, cultural studies, and communication theory. As such, the study does not aim to generate new empirical data, but rather to synthesize existing academic discourse in order to map the intellectual terrain of the field. The review offers a critical analysis of how research paradigms have evolved, how they inform methodological choices, and how they reflect broader epistemological and ideological orientations.

The literature review provides a basis for understanding the current state of research methods in intercultural communication. It is through this method that the study aims to

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uncover patterns, tensions, and emerging trends in methodological practices, thus contributing to a more coherent and reflective foundation for future research. By synthesizing existing scholarship through a literature review, this study contributes to a deeper understanding of how intercultural communication research is shaped by disciplinary traditions, historical contexts, and evolving theoretical paradigms. It also highlights emerging trends and methodological innovations, offering a foundation for future empirical research and theoretical advancements.

2 Methodology

The study adopts a literature review methodology as its primary mode of investigation. The purpose of this methodological approach is to systematically examine, synthesize, and critically analyse existing scholarly literature on intercultural communication research methods and paradigms. Rather than collecting new empirical data, the focus is placed on evaluating and integrating findings from a wide range of published academic sources in order to provide a comprehensive overview of methodological developments in the field. The focus of this study is to summarize and explain the most frequently used and cited approaches to intercultural communication research.

A literature review is an established qualitative method employed in academic research to map theoretical landscapes, identify gaps, and trace the evolution of academic debates. As Randolph (2009) notes, literature reviews are especially valuable for synthesising diverse perspectives across disciplines, assessing methodological rigour, and clarifying conceptual frameworks. This method is particularly appropriate for a field such as intercultural communication, which is inherently interdisciplinary and methodologically pluralistic.

The review process followed a structured approach. Academic databases such as Scopus, Web of Science, and Google Scholar were systematically searched using keywords including "intercultural communication," "intercultural communication research," "intercultural communication methods," and "intercultural communication theories." Priority was given to peer-reviewed journal articles, academic monographs, and edited volumes published in English within the last three decades. Seminal works from earlier periods were also included to provide historical context where relevant.

The selected literature was analysed using thematic coding techniques to identify the prevailing methodological trends and the most frequently cited sources. In keeping with principles of qualitative inquiry, this review emphasizes depth of analysis over exhaustive breadth. The goal is not merely to list the methods but to interpret how methodological choices reflect broader theoretical assumptions within the field.

3 Methodological Approaches to the Study of Intercultural Communication

Scientific research is based on objectivity and verifiability. Nevertheless, the epistemological stance of a researcher significantly influences their methodological choices. Methodology refers to the overarching framework guiding data collection, while methods refer to the specific techniques used. According to Pružinský et al. (2011, p. 92), methodology can be regarded as the science of scientific method application, whereas methods denote the particular procedures utilized for data collection. Škodová (2013, p. 7) similarly asserts that methodology encompasses the appropriate strategies for conducting research. Ferjenčík (2010, pp. 14–16) posits that scientific research seeks to describe, classify, and categorize data to enable predictive and explanatory results. Hendl (2009, p. 23) aligns with this perspective, defining research as a systematic investigation designed to elucidate and explain aspects of the world, and characterizing it as a process of critical synthesis and analysis aimed at expanding knowledge.

The evolution of intercultural communication research has consistently reflected the contextual frameworks within which it is conducted. Methodological choices are invariably shaped by disciplinary conventions and dominant paradigms. Pružinský et al. (2011, p. 92) maintain that while scientific methods are universal across disciplines, research methods are tailored to the specific procedural demands of individual fields.

Intercultural communication is investigated across a range of disciplines. Piller (2017, p. 9) argues that its study is multidisciplinary rather than interdisciplinary, occurring in domains such as business, cultural studies, anthropology, education or management. This complexity is compounded by divergent understandings of "culture" across disciplines (Piller, 2017, p. 10), which hampers interdisciplinary integration.

Barnett and Lee (2002, p. 283) highlight challenges in delineating intercultural communication from related fields such as cross-cultural, international, and comparative media studies. They also critique pre-1990s research for its Western-centric orientation and reliance on quantitative approaches exemplified by Hofstede’s work. They advocate for collaborative research with cultural insiders and the use of diverse data collection strategies.

Piller (2017, pp. 4–5) underscores the need to distinguish among contrastive, interactive, and discursive research paradigms – terms she aligns with cross-cultural, intercultural, and inter-discourse communication respectively. While contrastive research compares communicative practices across cultural groups, interactive research examines such practices in context, and discursive approaches investigate the performative construction of cultural identity through language.

Gudykunst and Ting-Toomey (1988, p. 223) emphasize the "unique methodological issues" inherent in cross-cultural research. Citing Triandis, they caution that research methods may not translate equivalently across cultures, thereby necessitating methodological plurality.

They also stress the importance of clearly defining the level of analysis, be it cultural, organisational, or individual, as this impacts data interpretation. Martin et al. (2012, pp. 22–23) note differences between American and European approaches to intercultural communication. European research is characterized by its socio-political motivations (especially regarding immigration), its linguistic focus, its disciplinary grounding in linguistics, and its preference for interpretative and qualitative methodologies. Since the late 20th century, American scholarship has increasingly adopted interpretative approaches, recognizing the cultural embeddedness of research paradigms (Martin & Nakayama, 2022, p. 45).

Gudykunst (Gudykunst & Mody, 2002, pp. 183-184) claims that there has been enormous progress in intercultural communication research since the 1980s. He adopts the general subjectivist and objectivist distinction of approaches to intercultural communication and adds that "today, there are at least 15 theories covering different aspects of intercultural communication." These theories are divided into five categories based on their focus[2]. (Gudykunst & Mody, 2002, p. 184). Most of these theories are objectivist, i.e. they try to find recurrent behaviour elements, see communication as determined by the context, and separate external world and individuals as opposed to subjectivist belief in individualized world and communication (Gudykunst & Mody, 2002, p. 183).

Martin and Nakayama (2022, p. 47) categorize intercultural communication research into three main paradigms: the functionalist, the interpretive, and the critical. The functionalist approach relies on quantitative methods such as surveys and observations, often within the domain of psychology. The interpretive approach, rooted in anthropology and sociolinguistics, employs qualitative methods such as fieldwork and participant observation. The critical approach employs textual analysis to expose power dynamics and is used across several disciplines. Each approach offers distinct contributions: the functionalist identifies cultural variability, the interpretive emphasizes contextual understanding, and the critical foregrounds the role of power in communication (Martin & Nakayama, 2022, p. 47). The functionalist paradigm presumes an objective external reality and views culture as a measurable variable, aiming to predict communicative behaviour (Martin & Nakayama, 2022, pp. 48–53). However, its predictive ambitions often fall short in the complexity of intercultural contexts. Conversely, the interpretive paradigm views reality as socially constructed and human experience as subjective, favouring qualitative insights. However, it is limited by its reliance on outsider perspectives (Martin & Nakayama, 2022, pp. 54–60). The critical paradigm perceives reality as both subjective and material and analyses communication in its socio-political context (Martin & Nakayama, 2022, pp. 60–66). This includes examination of macro contexts, such as historical power dynamics and media representations, with the aim of social transformation. Postcolonialism exemplifies this approach, focusing on deconstructing colonial legacies.

[2] Focus on: 1. effective outcomes, 2. accommodation or adaptation, 3. identity management or negotiation, 4. communication networks, 5. acculturation or adjustment (Gudykunst & Mody, 2002, p. 184).

Researchers investigate mechanisms of social reproduction that maintain cultural hegemony (Martin & Nakayama, 2022, p. 65).

Acknowledging the limitations inherent in each paradigm, Martin and Nakayama (2022, pp. 66–71) propose a dialectical approach that synthesizes functionalist, interpretive, and critical elements. This integrative perspective views intercultural communication as relational, processual, and inherently contradictory. It resists binary thinking and embraces the complexity of cultural interactions. The dialectical model recognizes multiple interacting tensions, including cultural – individual, personal – contextual, difference – similarity, static – dynamic, historical – present, and privilege – disadvantage dialectics. Ultimately, Martin and Nakayama (2022, p. 71) argue that a comprehensive understanding of intercultural communication must consider four interrelated components: culture, communication, context, and power. Context and power serve as the backdrop within which culture and communication unfold.

Berry (1997, pp. xi-xvi) differentiates between etic and emic approaches, which can be the same distinction as between functionalist and interpretive perspectives. Martin and Nakayama (2022, p. 54) compare the difference to linguistic phonetic and phonemic distinction. The etic approach offers an external analytical framework, while the emic perspective prioritizes insider views of a specific cultural context. Gudykunst and Ting-Toomey (1988, p. 226) note that psychological and sociological studies often employ etic methods, whereas anthropological research typically adopts emic frameworks. To summarize the distinction, the etic approach (Gudykunst and Ting-Toomey, 1988, p. 226):

- studies behaviour from outside the system,
- compares more cultures,
- structured by the analyst,
- universal criteria.

Emic approach (Gudykunst and Ting-Toomey, 1988, p. 226):

- studies behaviour from within the system,
- examines one culture,
- the analyst discovers the structure,
- relative criteria.

In conclusion, methodological decisions in intercultural communication research are shaped by contextual factors, disciplinary traditions, practical research conditions, and the epistemological stance and expertise of the researcher.

3.1 Interpretation and Application of the Results

The review of methodological approaches in intercultural communication reveals its paradigmatic diversity, interdisciplinary character and methodological plurality. This diversity reflects both the interdisciplinary origins of the field and the evolving demands placed on it by shifting global, cultural, and communicative contexts. By analysing the literature through the

lens of research paradigms identified by Martin and Nakayama (2022) - functionalist, interpretive, and critical - it becomes evident that the field is shaped by distinct and often competing assumptions about the nature of knowledge, culture, and communication.

The functionalist paradigm, as described by Martin and Nakayama (2022), is rooted in positivist traditions and has historically dominated empirical research on intercultural communication. It emphasizes objectivity, generalizability, and quantifiable outcomes, often focusing on variables such as communication competence, adaptation, and intercultural effectiveness. Although this approach offers valuable insights, especially in applied contexts such as business or health communication, it has been critiqued for oversimplifying cultural complexity and reinforcing essentialist views of cultural identity (Martin & Nakayama, 2022, p. 48-54). One of the most prominent representatives of the functionalist paradigm in intercultural communication research is Geert Hofstede (Martin & Nakayama, 2022, p. 82-83), who is known for his cultural dimensions and software of the mind (Hofstede et al., 2010).

In contrast, the interpretive paradigm (Martin & Nakayama, 2022, p. 54-60), grounded in hermeneutics and social constructivism, seeks to understand how individuals construct meaning and negotiate cultural differences through discourse and interaction. This approach prioritizes depth, context, and the co-construction of reality, offering richer and more nuanced understandings of intercultural encounters. The rise of interpretive studies marks a paradigmatic shift that aligns with broader trends in qualitative inquiry and reflects a growing awareness of subjectivity, reflexivity, and the limits of objectivist epistemologies (Martin & Nakayama, 2022, p. 54-60). Dell Hymes (1972) is traditionally cited as representative of this approach. He is known for his SPEAKING framework for studying natural speech (Hymes, 1972).

The critical paradigm (Martin & Nakayama, 2022, p. 60-66) further challenges traditional models by interrogating the power dynamics, ideologies, and structural inequalities embedded in intercultural interactions. Drawing on critical theory, postcolonial studies, and feminist epistemologies, this paradigm critiques the neutrality of knowledge production and advocates for socially engaged research. It encourages scholars to question dominant narratives, highlight marginal voices, and examine how communicative practices reproduce or resist systems of oppression. This paradigm is represented by postcolonialism and by the use of textual analysis (Martin & Nakayama, 2022, p. 60-66).

Martin and Nakayama (2022) propose to synthetize these paradigms in a dialectical approach recognizing the complexity and paradoxical relations in intercultural settings. The reality, which can be seen from the literature review, is that there are two dominant trends – towards the functionalist/etic/objectivist approach on one side, and interpretive/emic/subjectivist on the other. Researchers either look at culture as an objective external phenomenon or they see it as subjective reality. The functionalist approach describes, while the interpretive approach perceives. The distinction can also be seen in the preference of either quantitative or qualitative research methods.

The literature review also highlights an increasing awareness of the need for methodological reflexivity and interdisciplinary integration. Scholars are increasingly recognizing that no single paradigm or method can fully capture the complexities of intercultural communication. As such, there is a growing interest in methodological hybridity, where mixed methods or multi-paradigmatic approaches are employed to address complex research questions. This trend reflects a maturation of the field and a movement toward more flexible, context-sensitive research designs.

In summary, the discussion affirms that intercultural communication research is situated at the intersection of theory, method, and praxis. Understanding the paradigmatic choices behind methodological decisions is crucial not only for scholarly rigour but also for the political and ethical implications of knowledge production in a culturally diverse world. The findings of this literature review contribute to this understanding and advocate for a more reflexive, critical, and inclusive methodological orientation in the study of intercultural communication.

4 Conclusion

This study has examined the methodological foundations of intercultural communication through a comprehensive literature review, emphasizing the importance of paradigmatic awareness in shaping research design and interpretation. Functionalist, interpretive, and critical paradigms each offer distinct epistemological lenses that influence how researchers conceptualize culture, communication, and knowledge production. The dominance of functionalist approaches is being increasingly questioned by scholars who advocate for interpretive and critical frameworks that prioritize context, reflexivity, and power relations. The incorporation of a dialectical approach further underscores the shift toward understanding intercultural communication as a co-constructed and dynamic process, rather than a fixed set of variables to be measured.

Overall, the literature review affirms that intercultural communication research is not merely a technical endeavour, but a deeply theoretical and ideological one. The methodological choices reflect broader commitments to how we understand human interaction, identity, and social change. Future research must continue to critically engage with methodological assumptions, embracing interdisciplinary insights and fostering inclusive and context-sensitive approaches to studying intercultural communication.

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References

Barnett, G. A., & Lee, M. (2002). Issues in intercultural communication research. In W. B. Gudykunst & B. Mody (Eds.), *Handbook of international and intercultural communication* (pp. 275–290). Sage Publications.

Berry, J. W. (1997). Preface. In P. R. Dasen, J. W. Berry, & N. Sartorius (Eds.), *Handbook of cross-cultural psychology: Vol. 2. Basic processes and human development* (pp. xi–xvi). Allyn & Bacon.

Ferjenčík, J. (2010). *Úvod do metodologie psychologického výzkumu*. Portál.

Gudykunst, W. B., & Mody, B. (Eds.). (2002). *Handbook of international and intercultural communication* (2nd ed.). Sage Publications.

Gudykunst, W. B., & Ting-Toomey, S. (1988). *Culture and interpersonal communication*. Sage Publications.

Hendl, J. (2009). *Přehled statistických metod: Analýza a metaanalýza dat*. Portál.

Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind. Intercultural cooperation and its importance for survival* (3rd ed.). McGraw Hill.

Hymes, D. (1972). On communicative competence. In J. B. Pride & J. Holmes (Eds.), *Sociolinguistics* (pp. 269–285). Penguin Books.

Martin, J. N., Nakayama, T. K., & Flores, L. A. (2012). The history and development of the study of intercultural communication and applied linguistics. In J. Jackson (Ed.), *The Routledge handbook of language and intercultural communication* (pp. 17–36). Routledge.

Martin, J. N., & Nakayama, T. K. (2022). *Intercultural communication in contexts* (8th ed.). McGraw Hill.

Piller, I. (2017). *Intercultural communication: A critical introduction* (2nd ed.). Edinburgh University Press.

Pružinský, M., Komárik, M., & Škrabáková, J. (2011). Veda, výskum, vedecké metódy a ich aplikácia. In A. Exnarová & A. Pavlíček (Eds.), *Systémové přístupy ´11. Systémové myšlení jako změna paradigmatu* (pp. 88–97). Oeconomica.

Randolph, J. J. (2009). A guide to writing the dissertation literature review. *Practical Assessment, Research & Evaluation, 14*(13). https://doi.org/10.7275/b0az-8t74

Škodová, Z. (2013). *Praktický úvod do metodológie výskumnej práce*. Jesseniova lekárska fakulta.

Selected Problems in Teaching English Phonetics to Polish students of English with a Particular Attention to the Phoneme *[t]* in English

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Abstract

This paper examines the educational trajectory of Polish learners of English with a focus on pronunciation, particularly the phoneme [t] and its allophonic variants. It analyses articulatory and auditory challenges encountered at different educational stages, from preschool to secondary school, highlighting the role of early exposure and teacher pronunciation quality. Special attention is given to contrasts between English and Polish phonetic systems, such as aspiration, dental/alveolar distinctions, and connected speech phenomena, including assimilation. The paper identifies recurring pronunciation errors – especially in the treatment of the -ed suffix- and discusses their persistence due to insufficient phonetic instruction. It argues that consistent, integrated phonetic training is essential for developing accurate pronunciation, enhancing phonetic awareness, and preventing fossilisation of errors. The discussion is relevant to both Polish learners striving for a Standard British or General American accent and teachers aiming to improve classroom pronunciation practices.

***Keywords**: English phonetics, Polish learners, Pronunciation errors, [t] Phoneme, Allophones, aspiration, Connected speech, Assimilation, -ed Suffix.*

1 Introduction

Selected problems in teaching English phonetics to Polish students of English with a particular attention to the phoneme [t] in English

The present paper attempts to assess the educational stages a Polish student of English has to go through, with all the possible consequences that may accompany the process. More specifically, it focuses on English pronunciation and addresses the aspects of English phonetics

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that Polish students of English find particularly challenging to master, both from the articulatory and auditory perspectives. Nonetheless, the article is chiefly concerned with a description of the English phoneme *[t]* and its allophonic variants. It is believed here that both the phoneme and its allophones are responsible for many errors committed by Polish learners of English. The article also addresses, although less comprehensively, other areas of English phonetics that pose significant challenges to Polish students of English who aim to reproduce *'the right accent'* (in our case, Standard British English or General American accent). Having all these purposes in mind, respective educational stages in young and adult students' language development have been described in order to shed some light on the linguistic situation they are plunged into upon entering an educational institution. Basically, the approach adopted here is that of the article being a valuable source of information both for the Polish student struggling with English phonetics and the English language instructor who is working towards eliminating a number of pronunciation mistakes in the context of his or her classroom.

The article attempts to show that correct pronunciation is an essential component in shaping students' phonetic awareness and their sensitivity to even the slightest subtleties in the act of communication (connected speech processes). Ignoring these nuances often results in the perpetuation of some bad pronunciation habits, which tend to linger on until completion by students of a more advanced English language course or even beyond.

2 Some preliminaries

Unavoidably, spoken language is the language that one is exposed to from the very moment of birth, and since then on, the primary medium of communication for him or her and his or her potential interlocutors. Writing usually comes as the last skill to be acquired. In one's later life, the interactions between speakers may, and they usually do, go along different paths, as speakers of a language develop individual pronunciation habits, which are often to do with one's physiology, mannerisms and of course the linguistic area a given speaker comes from. These habits, however, cannot go as far as one speaker being exposed to the risk of being misunderstood by another. In other words, speakers within a specific language area should be capable of making themselves mutually intelligible. Things are different, however, with second or foreign language acquisition.

3 Educational stages in Polish schools

For us to have a broader view of the linguistic situation in Polish schools, we shall first look at the educational stages that an average Polish learner has to go through and highlight the moment(s) at which he or she is exposed to a foreign language. The moment in question is a pre-school period when a four- or five-year-old child is encouraged by his or her parents to participate in his or her first English language classes. From both the phonetic and second-language acquisition perspectives, this is an ideal time for introducing a very young child to

the English language structure. At this point, the child is usually taught several basic English words, with colours and names of animals coming first. It is essential to note that at this age, a child cannot read or write. It reacts, however, to various stimuli, which usually assume the form of colourful pictures, meant to be teaching aids and typically showing some everyday objects or fruit. One might say that this is the first time a child experiences its first English pronunciation lesson. At this point, a great deal depends on a well-trained teacher whose pronunciation should be relatively flawless. Ideally, this should be a native English speaker, and in larger cities, especially in private language schools, this is becoming the norm.

The primary school is the next educational stage for a young learner. In this respect, a great deal has changed in Poland, and children begin to learn English as their compulsory subject as early as the first grade. Previously, the starting point was the fourth grade, when children were able to read and write. Again, children, when they are between seven and nine years old, begin to read and write in their first language. This is also the first time they are exposed to spelling and punctuation. Apart from their first English pronunciation classes, they become familiar with other forms of communication in their first and second language. However, speaking remains the most important skill as far as foreign language learning is concerned. This is also the time when children are encouraged to answer questions in complete sentences, not in single words.

The next stage comes when they begin the fourth grade. From the present author's teaching experience, this is a stage when young learners are particularly keen on learning English, and their willingness to learn the language acts as an encouragement for other learners and the teacher alike. Although the units in the textbooks they use revolve around familiar subjects, such as descriptions of their own family or their room, students begin to use more phonetically advanced structures, typically the empty subject *there's*. A good teacher instructs their students to voice the *'s,* and they know that the *'s* in *there's* should be pronounced as /z/.

Towards completion of their primary school education (the seventh and eighth grades), the English language textbooks students use become more advanced, and they usually contain a large amount of vocabulary, which is not restricted to describing everyday objects. At this point, more serious topics are being discussed, and students have to be prepared to make use of a more sophisticated language. As far as pronunciation is concerned, current English textbooks usually include pronunciation tasks as part of their selected textbook units. What is more, apart from typically pronunciation-oriented problems, the books also contain exercises devoted to language suprasegmental features such as intonation and word-stress. However, at this point, this takes place only at a very rudimentary level.

The third, and probably the most important stage in the English language pronunciation skills, takes place when students begin secondary school. In Poland, this happens when students are about fifteen years old. This is also the time when they draw on their previous English class experiences. From a phonetic perspective, this is often a negative experience. Unfortunately, the teachers are to blame, not the books, which, as mentioned above, usually

contain pronunciation tasks. From the fourth to the eighth grade, students are taught a large amount of grammar with a relatively poor coverage of phonetic aspects. Consequently, even relatively advanced English language students struggle to pronounce some of the most common English words, such as *area, vegetables, fruit, knowledge, and apple*.

Unavoidably, this may have serious consequences for the student's future language progress, depending on whether the earlier bad habits affect individual vocabulary items or a larger phonological system of the language. Accordingly, if a larger system is affected, we are dealing with a global error, and if only individual words are impacted, we define it as a local error (Sobkowiak, 1996, pp. 21-22). The former ones are more grievous. From the language teaching and learning perspective, both students who are and who are not made aware of their mistakes are affected by Krashen's *'affective filter'* (Krashen, 1982, pp. 30-32). In principle, it means that all the negative language experiences we were put through in the past relate to our current state of language competence.

4 Description of selected consonantal phonemes in English

One of the very first obstacles students are usually confronted with (irrespective of their language proficiency) is the pronunciation of the two English interdentals /θ/ and /ð/, typically found in *th*-spelt words, for example, *think, theme, they, through*, etc. The problem is that neither the voiceless nor the voiced fricative occurs in Polish. The difference lies in the place of articulation. The English dentals are articulated usually with the tongue tip being interposed between the teeth. This gives the sound a specific phonetic quality which is not to be found in Polish dental consonants. In the Polish dental fricative /t/, which, according to many native speakers of Polish, seems to be the closest phonetic alternative to the English dental /θ/, the tongue tip touches the upper incisors (Bałutowa, 1995, p. 87; Sobkowiak, 1996, p. 69). When pronounced by Polish learners of English, the sound is often mispronounced, which results in a global error, since there are a large number of English words spelt with *th*, and these are usually realised as interdental fricatives. There is also an error of a different nature, which is connected with mispronouncing the English phoneme /t/ whose place of articulation is alveolar, not dental. With time, the error spreads to other English consonant clusters in which /t/ can be found. A notable example is the *tr*-consonant cluster. In Polish, the two phonemes are pronounced separately, the /t/ being dental and /r/ being a rolled alveolar consonant. In English, the cluster has the same place of articulation, namely post-alveolar, with the /r/ being devoiced (Reszkiewicz, 2005, p. 94).

Another phonetic context in which the English phoneme /t/ is frequently encountered is a voiceless alveolar plosive and its realisation as an aspirated version of its otherwise unaspirated counterpart. However, a number of conditions must be met for this and other plosives to be aspirated. To begin with, the plosive must occur in an accented syllable, and a stressed vowel must follow it. Some canonical examples include *tie, toe, take, took, tend*, etc. In all the words, the /t/ is fully aspirated, which articulatorily constitutes some extra puff of

air being expelled and auditorily makes an impression of there being 'an explosion'. It is possible to aspirate the plosive in an unaccented syllable, but in this case, the consonant is only slightly aspirated. Perhaps /p/ is better suited for this purpose than other plosives (Cruttenden, 2008, pp. 159-160). Another requirement that must be satisfied is that only voiceless plosives can be aspirated in English. The voiced plosive cannot be aspirated. Hence, if a voiceless stop is unaspirated, a native speaker of English might interpret it as the voiced stop being articulated instead (Roach, 2012, p. 18). From the contrastive English-Polish viewpoint, then, the difference (ignoring for the moment a difference in the place of articulation) lies in the fact that the Polish phoneme inventory lacks aspirated stops. In other words, if learners of English do not aspirate the voiceless plosives, the fact is immediately noted by a native speaker.

On the other hand, native speakers of English apply the rules of aspiration intuitively and for them all this comes naturally (Knight, 2021, p. 115). This being so, a proper amount of time and caution should be exercised by the learner to combat the mistake, and the teacher should point it out to the student. Among the suggested, easily applicable techniques is to hold a piece of paper in front of one's mouth and articulate a voiceless plosive in such a way as to ensure the movement of the paper. If the paper does not move, the sound is incorrectly articulated (Bałutowa, 1995, pp. 123-124; Reszkiewicz, 2005, p. 62).

Sobkowiak (1996, p. 83) points out a situation in which a Polish speaker may produce a slightly aspirated plosive, namely in situations when we talk to someone angrily. However, one's agitation seems an extra-linguistic feature and as such it is not considered a conventional representative of a phoneme inventory. At the opposite extreme, however, we are dealing with a context which is deficient in the presence of aspiration in English. The context in question is the presence of /s/ before a voiceless plosive in the same syllable. Accordingly, in the following words, the /t/ plosive remains unaspirated: *stay, string, stool, stand*, etc. To sum up the discussion about the English and Polish plosives, it has to be stressed that both exaggerating and understating their articulation is considered a mistake.

5 Connected speech and assimilation

Another context where /t/ and its voiced counterpart can be found is the *-ed* grammatical ending, which is used as a marker of the past tense and past participle of regular verbs. Let us first, however, take a look at the phenomenon of connected speech as such. It is natural and indeed expected to encounter phonetic situations in which one's speech seems to be considerably blurred, sometimes to the point of being misunderstood. When we carry out conversations, we do not usually make pauses between words; otherwise, our speech would be somewhat robotic and hence unnatural. Technically speaking, then we, as speakers of a given language (assuming that we are native speakers of a language or quite proficient in it), are involved in the connected speech phenomenon. Connected speech is well described and explained in several books and papers, for example, (Sobkowiak, 1996, pp. 214-239;

Cruttenden, 2008, pp. 263-293; Roach, 2012, pp. 107-115; Alameen & Levis, 2015, pp. 159-175). However, for the sake of this article, it seems necessary to briefly remind you what connected speech is and what it is not.

To begin with, connected speech, though natural, does not have to be fast. The fastness of the exchange depends on a number of conditions, such as the formality of the situation, the social context in which the conversation is being carried out, and even the age and sex of the speakers. Usually, the more formal the context is, the slower the speech becomes and hence less connected. For example, when lecturers deliver a message to their students, the speech is broken down into smaller, more manageable pieces. At the opposite end of the continuum, we are dealing with rapid exchanges of conversation between close friends. In the latter case, the speech becomes more connected.

6 Assimilation

One of the aspects of connected speech which is responsible for the auditory effect of 'blurred speech' is assimilation. Assimilation could be defined as one sound becoming more like a neighbouring sound in a string of speech, or in more extreme cases, identical to a neighbouring sound. Assimilation can operate leftwards (regressive assimilation) or rightwards (progressive assimilation), depending on whether it is the former sound that affects the latter or vice versa. In English, the most notable examples of regressive assimilation are those in which non-alveolar consonants follow alveolar consonants *t,d,s,z,n*. A frequently cited example is the phrase *"this shop"*, where the/s/ of *"this"* becomes the/ʃ/ of *"shop"*, resulting in the phrase /ðiʃʃɒp/. Alternatively, when in *football* the otherwise pronounced parts of the word as /fʊt/ and /bɔːl/ combine in the compound word to produce /fʊpbɔːl/, where /t/ under the influence of the following /b/ changes its place of articulation to become a bilabial consonant.

Progressive assimilation, though less common than regressive assimilation, is well-attested in English, where the *-s* ending (plural nouns) is pronounced either as /s/ when the last consonant in a word is a voiceless one or as /z/ when the last consonant in a word is a voiced one. For example, *cats* is pronounced /kæts/ but *dogs* is pronounced /dɒgz/.

The production of /t/ can also result from pronouncing the *-ed* suffix, in which case we are dealing with progressive assimilation; depending on whether the last consonant in a word is voiceless or voiced, the suffix is pronounced differently. Thus, for instance, in the word *worked*, the suffix *-ed* is pronounced as /t/ because the consonant /k/ is voiceless and renders the consonant /d/ voiceless too as a result of progressive assimilation. The opposite phenomenon occurs when the final consonant in a word is voiced, then the suffix *-ed* is pronounced as /d/, for example, in the word *logged*. Some linguists ascribe this phenomenon to the concept of 'ease of articulation' or 'economy of effort' as it is sometimes alternatively called (Sobkowiak, 1994, p. 4). Whatever the cause, it should be stressed that the ending is a source of numerous mispronunciation errors among Polish students, especially in the first

stages of education. However, it would be incorrect to assume that the difficulty in maintaining the correct tone diminishes once the later stages of education are reached. On the contrary, it sometimes persists until a student is made aware of his or her error, which usually takes place in the last stages of his or her education. (secondary school or university).

The *-ed* case merits further investigation here, since the mispronunciation of the suffix is not restricted to the voiced vs voiceless pair opposition. Apart from the failures in getting the proper voicing, an extra (vocalic) segment is inserted between the last consonant of a word and the consonant of the *-ed* ending. For example, in the above-mentioned word, English teachers often hear students insert the vowel /ɪ/ or even /e/, which results in such horrendous mispronunciations as /worket/ or/ workɪt/. As can be seen, the two mispronunciations are packed into the one 'modest' grammatical ending. The first one is connected with a failure to achieve the proper voicing, and the other one with inserting an epenthetic vowel where it does not belong. At this point, an experienced English language instructor should ask themselves a question about where the mispronunciation springs from. The author of this article believes that the problem arises the moment students are introduced to the formation of the simple past tense in English.

Even an intermediate-level student of English knows that the past tense in English is formed by adding the *-ed* suffix to the so-called regular verb, which constitutes a majority of cases in English. It being the case, students should be instructed by their teacher that the pronunciation of the suffix is phonetically conditioned, that is, its voicing depends on the final consonant of a lexical verb. This information should be followed by a large number of drilling exercises, which would sensitise them to the voicing problem. Many English teachers, however, do not pay much attention to the pronunciation of their students when explaining the simple past tense rules, instead focusing mainly or solely on its grammatical status. Of course, this is not to deny that rules of grammar should be neglected, but instead they should be immediately supplemented with phonetic information. At this point, since pronunciation is so important in a foreign language acquisition, why not give it priority when introducing the simple past tense in the classroom? One problem is that, depending on the level of proficiency, students might not know the meaning of verbs which are being used as examples. However, the teacher can base the proper introduction on the verbs which students already internalise, and thus he or she can prioritise phonetic exercises. Another problem is that teachers believe that preparing students for the finals (which typically assume a written form) should be considered a priority and that the phonetic content is less important.

It should also be noted that the educational system in Poland has undergone numerous modifications and changes. As a result of the changes, many items have been removed from both the primary and secondary school curricula. Those who were educated earlier were given a more thorough instruction, even in their first language, including phonetics. For example, back in the 1980s, students in primary school were taught how to tell voiceless from voiced sounds as part of their Polish language classes. It is essential from the point of view of the modern student of English who is not trained even in the rudiments of his or her first-language

pronunciation. Being deprived of the basics, the student finds the environment in which he or she is being educated an increasingly hostile one.

7 Pronunciation of /t/ as a flap or tap

Another variant in which the English phoneme /t/ can be encountered applies to the contexts where students learn American English pronunciation. In words like *city, better, wanted*, etc., the phoneme [t] is realised as a flap or a tap. Technically, the latter is produced by a complete closure between the tongue and the alveolar region. The sound is very brief and is made by a sharp upward throw of the tongue blade. Auditorily, the sound resembles /t/or /d/. Some linguists make a distinction between the two: *"Some phoneticians distinguish systematically between flaps and taps, because in the case of flaps the articulator which makes the contact is returning to a position of rest, whereas in the case of taps this is not so, and the contact resembles a very rapid stop articulation"* (Crystal, 2008, p. 191). The problem with the phoneme /t/ is that very often Polish students cannot decide (more or less intuitively) which variety of /t/ they are going to use. Should they go for the American (flap or tap) realisation of the phoneme, or should they choose the standard British English allophone realised as a 'regular' stop consonant? In this case, the answer is rather obvious. If, for some reason, students prefer the General American variety, they should stick to the flap or tap pronunciation, which is considered a standard (Wells, 2008, p. 805). If, however, they opt for the standard British English accent, they should be consistent in their choice as well. Moreover, it is essential to reiterate that combining various elements from one accent and the other can have a profoundly negative impact on the listener.

8 Conclusion

Based on the article, a few conclusions can be made. To begin with, teachers of English, especially the less experienced ones, should realise that the implementation of phonetic content into the English lesson is essential from the earliest stages of education. At some later stages, more pronunciation exercises should be introduced, either those already found in English-language textbooks or the existing ones should be expanded if necessary. Also, teachers should make a point of introducing pronunciation tasks alongside the grammatical ones, at the same time not treating the former ones as being inferior, which, as was previously demonstrated, often happens. Phonetically challenging consonants should be given more attention by teachers and students alike. Phonetic contexts that notoriously cause problems, such as the suffix *-ed* in English, should be given extra care. This is particularly important for Polish learners of English who struggle to apply the correct voicing to the suffix, as Polish obstruent word endings are typically devoiced. Furthermore, last but not least, it should be remembered that the English phoneme [t] has many facets, and the phonetic contexts in which it occurs should be thoroughly studied.

References

Alameen, G., & Levis, M. J. (2015). Connected speech. In M. Reed & M. J. Levis (Eds.), *The handbook of English pronunciation* (1st ed., pp. 157–173). Oxford, UK: Blackwell Publishing.

Bałutowa, B. (1995). *Wymowa angielska dla wszystkich* (8th ed.). Warszawa, Poland: Wiedza Powszechna.

Cruttenden, A. (2008). *Gimson's pronunciation of English* (7th ed.). London, UK: Routledge.

Crystal, D. (2008). *A dictionary of linguistics and phonetics* (6th ed.). Oxford, UK: Blackwell Publishing.

Knight, R.-A. (2021). *Phonetics: A coursebook* (2nd ed.). Cambridge, UK: Cambridge University Press.

Krashen, S. (1982). *Principles and practice in second language acquisition* (1st ed.). Oxford, UK: Pergamon Press.

Reszkiewicz, A. (2005). *Correct your English pronunciation* (3rd ed.). Warszawa, Poland: Wydawnictwo Naukowe PWN.

Roach, P. (2012). *English phonetics and phonology: A practical course* (4th ed.). Cambridge, UK: Cambridge University Press.

Sobkowiak, W. (1996). *English phonetics for Poles* (1st ed.). Poznań, Poland: Bene Nati.

Wells, J. C. (2008). *Longman pronunciation dictionary* (3rd ed.). London, UK: Longman.

From Gold to Oganesson

The Etymology and Historical Development of Element Nomenclature

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Abstract

The nomenclature of chemical elements represents a rich intersection between linguistics, history, and science. This paper explores the etymology of the 118 known chemical elements, tracing their linguistic origins from ancient civilisations to modern discoveries. By employing a systematic chemoetymological approach, integrating historical records, linguistic analysis, and the chronological evolution of the periodic table, this study identifies recurring patterns in naming practices, including mythological references, geographical attributions, and honorific commemorations. Historical trends reveal a transition from utilitarian naming in early metallurgy to codified nomenclature standardised by the International Union of Pure and Applied Chemistry (IUPAC). The findings underscore the role of linguistic heritage in scientific culture and offer a framework for understanding how scientific language reflects broader sociocultural and historical dynamics.

***Keywords**: Chemical element Nomenclature, Etymology, History of science, IUPAC naming conventions, Linguistic origins*

1 Introduction

The names of chemical elements are not arbitrary labels; they are linguistic artefacts that embody the scientific, cultural, and historical contexts in which the elements were discovered or conceptualised. The study of the origins of these names, here termed chemoetymology, provides insight into the interplay between language and science over more than two millennia. Every element name carries with it a narrative, whether rooted in the descriptive observation of its physical properties, the mythological heritage of ancient cultures, the

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geographical pride of nations, or the desire to honour individuals and institutions that have advanced human knowledge. As such, examining the etymology of element names is not merely a matter of lexicographic curiosity; it is a means of tracing the intellectual history of chemistry and understanding how scientific language evolves in response to cultural, political, and epistemological changes.

The historical depth of element nomenclature ranges from terms inherited from pre-scientific metallurgical traditions, such as gold and iron, to highly technical modern coinages like oganesson. The evolution of these names parallels shifts in scientific paradigms, from alchemy to modern chemistry, and changes in the languages of scholarly communication, from ancient Greek and Latin to modern global English. This study, by systematically mapping these linguistic and thematic shifts, seeks to situate element nomenclature within a broader historical-linguistic framework.

1.1 Literature Review

The etymology of element names has received attention in both chemical history and lexicographic studies, though typically as part of broader discussions rather than as a focused field. Weeks (1932) provided one of the earliest systematic surveys of element names, tracing their origins to ancient metallurgy and early alchemical traditions (pp. 311–328). He identified the influence of Greek and Latin roots, particularly in elements such as aurum (gold) and hydrargyrum (mercury). More recently, Emsley (2011) offered a narrative account of the "stories" behind the elements, combining anecdotal history with linguistic explanation (pp. xv–xviii). His work, though rich in context, is less systematic in categorising linguistic origins. Jones (2005) analysed chemical terminology in the context of scientific language formation, noting that naming conventions often reflect geopolitical contexts, particularly in the 19th and 20th centuries (pp. 91–94). Similarly, Scerri (2007) discussed nomenclature changes as part of the evolution of the periodic table's structure (pp. 142–146).

Building on classic surveys, a new trio of papers by Miśkowiec in Foundations of Chemistry offers the most systematic, recent account of naming practices across all eras, with Part 3 focusing on twentieth- and twenty-first-century discoveries and the complex publication and priority trails that culminated in the names nihonium, moscovium, tennessine, and oganesson (Miśkowiec, 2023, pp. 235–251). Miśkowiec reconstructs the documentary sequence around the 2016 approvals and traces how press releases, conference notes, and journal publications interacted in the finalisation of names, providing granular context for modern naming procedures.

In parallel with this historiography, IUPAC's living online resources and periodic table updates continue to anchor current standards and revisions. The organisation's official periodic table page (latest release 4 May 2022) documents ongoing adjustments (e.g., standard atomic weights), while preserving the 2016 formal approvals of Nh, Mc, Ts, and Og within the authoritative record. These pages also dovetail with IUPAC's recommendation portal "How to Name New Chemical Elements," which codifies the five accepted bases for

naming—mythological concept, mineral, place, property, or scientist - and details the workflow from Joint Working Party recognition to Division review and Council ratification. Together, these sources frame how the most recent element names were vetted and adopted.

Recent overviews aimed at the wider scientific community underscore the contemporary significance of superheavy elements and the cultural visibility of their names. For instance, Scientific American (2024) highlights oganesson as the heaviest confirmed element and contextualises the extraordinary experimental scarcity that shapes public discourse and, indirectly, the prominence of commemorative naming in this region of the table. Although journalistic, such syntheses help situate the latest names within ongoing research programs and public engagement around superheavy-element chemistry.

Finally, the "Naming game" series also includes Parts 1 and 2 (Miśkowiec 2022), which revisit antiquity–18th century and the nineteenth century, respectively, providing a consistent, source-critical foundation that links early descriptive and mythological traditions to the modern honorific and geopolitical patterns established with Nh, Mc, Ts, and Og (Miśkowiec 2023). This continuity helps bridge the historical gap identified earlier in the literature review

Despite these contributions, there remains a gap in comprehensive, methodologically consistent studies that integrate historical linguistics with the chronological development of the periodic table. This study addresses that gap by systematically analysing element names from gold (Au) to oganesson (Og), applying linguistic categorisation to identify naming patterns and historical shifts.

1.2 Aim and Scope

The primary aim of this research is to investigate the historical and linguistic origins of all currently recognised chemical element names and to analyse how these origins reflect broader patterns of scientific, cultural, and political development. The study encompasses the entire set of 118 IUPAC-recognised elements, covering a chronological range from antiquity to the 21st century. It addresses both the linguistic sources of names, whether derived from classical languages, modern vernaculars, or hybrid forms, and their thematic origins, such as descriptive properties, mythological or astronomical references, geographical connections, and honorific dedications. The scope includes both naturally occurring and synthetically produced elements, with particular attention given to contested or historically variant names.

1.3 Significance of the Study

This research contributes to the emerging field of chemoetymology by offering the first systematic, hypothesis-driven analysis of element nomenclature that combines linguistic tracing, historical contextualization, and thematic classification. While earlier works have treated the origins of element names as anecdotal or supplementary to the broader history of chemistry, this study treats nomenclature as a primary object of scholarly inquiry. By doing so, it sheds light on how scientific discovery is embedded in linguistic traditions and shaped

by social forces. The results not only enhance our understanding of the cultural history of chemistry but also provide a framework for examining the evolution of other specialised scientific vocabularies. Moreover, the study highlights how naming decisions—often made in moments of intense scientific competition—can serve as enduring markers of cultural identity, intellectual legacy, and geopolitical influence.

2 Historical Overview

The history of element nomenclature mirrors the history of human engagement with matter itself, reflecting a long continuum from the earliest artisanal and symbolic interactions with metals to the formalised scientific naming systems of the modern era. The earliest known element names emerged not within laboratories or academic treatises, but from the practical worlds of metallurgy, commerce, and myth. In antiquity, metals such as gold, silver, copper, and iron were named in ways that conveyed their physical appearance, economic value, or cultural significance, often rooted in local languages but shaped by trade networks that spread terminology across regions. These names frequently carried symbolic associations, connecting the materials to deities, celestial bodies, or mythical narratives, thereby embedding them deeply in the worldview of the societies that used them. Over time, as scientific inquiry advanced and chemical knowledge expanded, these vernacular and culturally specific terms gave way to a more systematic approach. The evolution from locally derived names to standardised, internationally recognized nomenclature was neither sudden nor uniform; it reflected broader historical processes, including the rise of scholarly lingua francas, the codification of scientific method, and, eventually, the establishment of formal international bodies such as the International Union of Pure and Applied Chemistry (IUPAC).

2.4 Antiquity and Early Civilisations

The earliest known element names are deeply rooted in the linguistic and cultural contexts of ancient civilisations. Metals such as gold (aurum, Latin; from Proto-Indo-European h_2é-$h_2$us-o-m, “glow, dawn”) and silver (argentum, Latin; PIE root $h_2$erǵ-, “white, shining”) were known in antiquity and valued for their rarity and lustre. Egyptian metallurgy introduced terms such as electrum for a natural alloy of gold and silver, while Greek contributions included chalkos (χαλκός) for copper and hydrargyros (ὑδράργυρος, “water-silver”) for mercury. These early names were often descriptive, reflecting observable properties rather than abstract classification.

These pre-scientific names functioned as linguistic artefacts of early technological mastery, reflecting both empirical observation and symbolic meaning. In many cases, the earliest known terms for elements travelled along trade routes, blending linguistic influences as metals and minerals passed between civilisations. The Phoenician trade in tin, for example, brought Semitic words into contact with Greek and Latin vocabularies, leaving subtle etymological traces that remain detectable today. As the classical world gave way to the medieval era, element nomenclature became entwined with the esoteric traditions of

alchemy. Here, language served not only as a tool for identification but also as a vehicle for secrecy and symbolism. Metals were linked to celestial bodies - lead to Saturn, iron to Mars, mercury to the planet of the same name - reflecting a worldview in which the earthly and the cosmic were bound together. During this period, Latin became the lingua franca of scholarly communication, preserving Greek lexical forms while adapting them to the grammatical and phonological structures of medieval European learning. Alchemical manuscripts frequently used metaphorical or allegorical names, a practice that both concealed knowledge from the uninitiated and reinforced the mystical aura surrounding the substances themselves.

2.2 The Alchemical Periode

As the classical world gave way to the medieval era, element nomenclature became entwined with the esoteric traditions of alchemy. Here, language served not only as a tool for identification but also as a vehicle for secrecy and symbolism. From the late classical era through the Middle Ages, the naming of substances was heavily influenced by alchemical traditions. Element names often incorporated mystical or astrological associations; for example, lead was linked to Saturn, and mercury to the planet Mercury - connections rooted in the Hermetic worldview (Weeks, 1932, pp. 315–318). The linguistic repertoire during this period was primarily Latinized, enabling scholarly communication across medieval Europe.. During this period, Latin became the lingua franca of scholarly communication, preserving Greek lexical forms while adapting them to the grammatical and phonological structures of medieval European learning. Alchemical manuscripts frequently used metaphorical or allegorical names, a practice that both concealed knowledge from the uninitiated and reinforced the mystical aura surrounding the substances themselves

2.3 The Enlightenment and Early Chemistry

The Scientific Revolution and Enlightenment initiated a decisive shift toward systematic and transparent nomenclature. By the late eighteenth century, chemists such as Antoine Lavoisier sought to replace the cryptic and inconsistent terminology of alchemy with a rational, standardised lexicon. The Méthode de nomenclature chimique of 1787 codified many of these reforms, encouraging the use of descriptive, etymologically grounded names derived largely from Greek and Latin roots. Element names began to reflect chemical properties (e.g., oxygen from Greek oxys, “acid,” and genes, “producer”) rather than purely mythological or visual traits. The publication of Lavoisier’s Méthode de nomenclature chimique in 1787 marked a turning point in the codification of chemical language. This movement toward consistency reflected a broader Enlightenment commitment to clarity, universality, and the classification of knowledge.

2.4 The 19th Century: Industrialisation and Scientific Expansion

With the proliferation of chemical discoveries during the Industrial Revolution, naming conventions diversified in both form and purpose. Geographic references became increasingly common, with scandium (Sc) drawing its name from Scandinavia and germanium (Ge) from

Germany, reflecting the growing sense of national pride among discoverers eager to link scientific achievements to their homelands. This period also marked the rise of honorific naming, a practice exemplified by curium (Cm), named in tribute to Marie and Pierre Curie for their pioneering work in radioactivity. Such designations served not only as scientific acknowledgements but also as cultural statements, embedding personal and national legacies into the periodic table. The rapid pace of element identification in the nineteenth century, fuelled by advances in analytical chemistry and industrial metallurgy, often brought multiple laboratories into simultaneous pursuit of the same substances. This competitive environment inevitably led to disputes over priority and naming rights. One of the most notable was the long-standing "columbium–niobium" controversy, in which competing claims from different national scientific communities persisted for decades before resolution (Jones, 2005, pp. 92–93). Such disputes underscored the fact that nomenclature was not merely a matter of linguistic choice but also a battleground for scientific recognition, intellectual authority, and geopolitical influence.

2.5 The 20th and 21st Centuries: Standardization and Globalization

The twentieth and twenty-first centuries introduced a further layer of complexity: the naming of synthetic elements, often created in high-energy physics laboratories under international collaboration or competition. The establishment of the International Union of Pure and Applied Chemistry (IUPAC) in 1919 provided a formal authority for resolving disputes and ensuring standardisation. Modern names frequently honour prominent scientists (seaborgium, einsteinium, oganesson) or commemorate research institutions and locales (dubnium, livermorium), reflecting both the collaborative and competitive dimensions of contemporary science. The 2016 naming of nihonium, moscovium, tennessine, and oganesson, elements at the frontier of the periodic table, stands as the most recent milestone in this evolving tradition, illustrating the intersection of national recognition, institutional prestige, and the enduring linguistic heritage of scientific discovery. The naming of oganesson (Og) in 2016, after Russian physicist Yuri Oganessian, symbolises the culmination of centuries of evolving conventions, from descriptive properties to personal and institutional recognition (Scerri, 2007, pp. 145–146).

Thus, from the vernacular metallurgical lexicons of antiquity to the rigorously standardised procedures of IUPAC, the history of element nomenclature reveals a continuous negotiation between local identity and international consensus, between descriptive utility and symbolic expression. This historical trajectory provides the essential context for a systematic investigation of the etymology of element names, situating linguistic analysis within the broader cultural and scientific history of chemistry.

3 Methodology

This research applies an interdisciplinary qualitative approach, integrating historical linguistics and the history of science, to investigate the etymology of all 118 recognised chemical elements. The primary objective is to uncover the linguistic roots of element names

and to contextualise them within broader historical, cultural, and scientific developments. The study is guided by the following research questions:

RQ1: What are the dominant linguistic origins of chemical element names, and how have these changed over time?

RQ2: To what extent do historical, cultural, and geopolitical factors influence element nomenclature?

RQ3: Are there identifiable chronological patterns in the thematic origins of element names?

Based on the existing literature, three hypotheses were formulated:

H1: Earlier element names are predominantly derived from Latin and Greek, reflecting the linguistic heritage of early science.

H2: Modern element names increasingly reflect honorific and geographical references, in contrast to the descriptive and mythological naming conventions of earlier periods.

H3: Periods of intense scientific discovery, such as the late 19th and late 20th centuries, correspond to greater diversity in naming origins.

The dataset for this study was compiled from multiple authoritative sources. Primary data were drawn from chemical references, including:

- The official element list and naming guidelines published by the International Union of Pure and Applied Chemistry (IUPAC, 2023).
- Standard historical chemistry texts (e.g., Weeks, 1932; Scerri, 2007) providing original naming contexts.
- Lexicographic sources such as the Oxford English Dictionary and Etymological Dictionary of Latin and Greek, which trace word origins to their earliest attestations.

Supplementary data were obtained from scientific biographies, laboratory reports, and national academy announcements relevant to element discovery and naming..

Each element was examined for four key attributes: its source language, thematic origin, date and context of naming, and the identity and institutional affiliation of its discoverers. Thematic origins were grouped into five broad categories: descriptive properties, mythological or astronomical associations (mythonyms), geographical references (toponyms), honorific names (eponyms), and other or hybrid origins. Classification was carried out in two stages: an initial categorisation based on lexicographic and historical data, followed by verification against IUPAC's records to ensure accuracy.

The analysis proceeded in three interrelated phases (Table 1). First, the linguistic roots of each name were traced to their earliest attested forms, with attention to morphological structure and semantic meaning. Second, the names were placed along a chronological timeline to visualise the evolution of naming conventions across distinct historical periods, from antiquity and alchemy through to the modern and contemporary eras. Finally, recurring patterns were identified and correlated with the sociocultural and geopolitical contexts of the

time, allowing both diachronic (long-term historical change) and synchronic (contemporary thematic distribution) perspectives to emerge.

Table 1: The analysis proceeded in three stages

Stage	Description	Purpose
Stage 1 Linguistic tracing	Determining the earliest recorded form of each element's name and identifying its root meaning in the original source language.	To establish the etymological foundation of each name and document linguistic origins.
Stage Chronological mapping	Placing each element's name along a historical timeline covering distinct eras: antiquity, alchemical, pre-modern, modern, and contemporary.	To track the evolution of naming conventions and identify historical phases of change.
Stage 3 Pattern identification	Identifying correlations between historical periods and dominant naming themes, such as the increased prevalence of honorific naming in the late 20th century.	To reveal thematic trends and contextual relationships between naming practices and their historical settings.

This methodological framework enables a systematic exploration of chemoetymology as both a linguistic phenomenon and a historical narrative, situating the evolution of element nomenclature at the intersection of language, culture, and scientific progress.

4 Results

The analysis of the 118 recognised chemical elements revealed clear patterns in their linguistic origins, thematic classifications, and chronological distribution, allowing for the systematic testing of the research hypotheses and the answering of the guiding research questions.

The first research question (RQ1) asked about the dominant linguistic origins of chemical element names and their historical changes. The findings demonstrate that a majority of the elements, slightly over half, derive their names from Latin, while approximately one-third trace their origins to Greek. In many cases, these names entered scientific usage through the Latinized vocabulary of medieval scholarship, even when their original roots were Greek. The remaining proportion, roughly one-fifth of the dataset, is composed of names derived from modern languages, with English, German, Swedish, and Russian being the most represented. These modern-language origins are found exclusively in elements discovered during the last two centuries. This strongly supports Hypothesis 1 (H1), which predicted that earlier element names would be predominantly Latin and Greek in origin, reflecting the linguistic heritage of early scientific thought.

The second research question (RQ2) addressed the influence of historical, cultural, and geopolitical factors on element nomenclature. Here, the thematic categorisation of names proved highly revealing. The classification process identified five principal categories: names based on descriptive physical or chemical properties; names rooted in mythology or astronomical associations; names referencing geographic locations; names honouring individuals or institutions; and a miscellaneous group comprising hybrid or obscure derivations. Descriptive property names, such as oxygen ("acid-former") and chlorine ("greenish-yellow"), dominate among the earliest discovered elements, reflecting the empirical and sensory-based nature of early naming practices. Mythological and astronomical references, including tantalum (from the mythical King Tantalus) and uranium (from the planet Uranus), were also significant in the pre-modern period, especially during the Enlightenment, when classical knowledge was actively revived.

From the nineteenth century onward, the influence of nationalism and the institutionalisation of science became more apparent. Geographic names, such as polonium (after Poland) or yttrium (from Ytterby, Sweden), were used both to acknowledge the origin of discovery and, in some cases, to make political statements. Honorific naming, which was rare in earlier centuries, became increasingly common in the twentieth and twenty-first centuries, with examples such as curium, einsteinium, and oganesson commemorating prominent scientists. The rise of this category supports Hypothesis 2 (H2), which predicted that modern naming conventions would lean more toward honorific and geographic references than earlier descriptive or mythological terms. The findings also affirm that geopolitical context, whether in the form of national pride, scientific rivalry, or international collaboration, has been a decisive factor in the choice of names, thereby providing a strong answer to RQ2.

The third research question (RQ3) focused on whether there are identifiable chronological patterns in thematic origins. The chronological mapping of names revealed distinct phases in nomenclature development. In antiquity and the medieval period, element names were exclusively descriptive or mythological and rooted in classical languages. The Enlightenment and early industrial era introduced a more diverse set of naming strategies, with property-based names still dominant but increasingly supplemented by geographic references, as the scope of global exploration and scientific exchange widened. By the twentieth century, particularly after 1940, honorific naming had become a prominent feature, often recognising both living and deceased scientists and reflecting the growing importance of individual achievement within collaborative research environments. Periods of intense discovery, such as between 1860 and 1900 and again between 1940 and 2016, showed not only a higher frequency of newly named elements but also a marked increase in thematic diversity. This observation directly supports Hypothesis 3 (H3), which predicted that high-discovery eras would correspond to greater variation in naming origins.

The overall patterns emerging from this study confirm all three hypotheses. Early element names overwhelmingly reflect Latin and Greek linguistic heritage, later discoveries

increasingly favour honorific and geographical themes, and periods of concentrated discovery activity correlate with more varied nomenclature. Moreover, the answers to the research questions establish that the linguistic and thematic evolution of element names cannot be separated from the historical contexts of their discovery. Scientific language, as evidenced in element nomenclature, is shaped by both the enduring legacy of classical scholarship and the shifting social, political, and cultural priorities of successive generations of scientists.

5 Discussion

The findings of this study confirm and extend earlier observations on the historical and linguistic origins of chemical element names, while offering a more systematic and empirically grounded analysis than most previous works. The literature reviewed in the introduction, particularly the early historical accounts of Weeks (1932), the narrative-based etymologies of Emsley (2011), and the periodic table histories discussed by Scerri (2007), had already highlighted the influence of classical languages, cultural traditions, and scientific milestones on nomenclature. However, these accounts tended to treat etymology as an ancillary curiosity rather than as a structured field of inquiry. By contrast, the present research frames chemoetymology as an interdisciplinary domain in which historical linguistics, history of science, and sociocultural analysis converge.

The verification of Hypothesis 1, which established the dominance of Latin and Greek roots in early element names, confirms the long-standing linguistic continuity from classical antiquity to early modern science. This continuity reflects not only the intellectual prestige of classical languages but also their practical role as the lingua franca of scholarship before the rise of national scientific communities. In this sense, the element names of the pre-modern era function as linguistic fossils, preserving traces of the epistemic and cultural frameworks in which early chemistry developed. Weeks's (1932) observations on Latinized alchemical terminology are thus substantiated here with systematic evidence across the entire corpus of elements.

Hypothesis 2, which predicted a modern shift toward honorific and geographic naming, finds strong support in the chronological distribution of themes. This change reflects broader transformations in the organisation and public perception of science. As the nineteenth century advanced, the professionalisation of chemistry, the expansion of international exploration, and the rise of nation-states introduced new naming motivations, from commemorating national heroes to asserting territorial or cultural identity. The naming of polonium in 1898 by Marie Curie stands as a particularly salient case, where scientific nomenclature was deliberately used as a political statement. In the twentieth and twenty-first centuries, the growth of large-scale, collaborative research projects, often involving costly infrastructure and national investment, further reinforced the practice of naming elements after institutions, laboratories, and prominent scientists. This development, absent from the naming traditions of earlier centuries, reflects the modern culture of scientific recognition and the symbolic capital attached to discovery.

Hypothesis 3, which anticipated greater diversity of naming origins during high-discovery periods, also emerges as well supported. The two most notable surges, the late nineteenth century and the post-1940 nuclear era, coincide with profound technological advances that allowed scientists to detect, isolate, and synthesise previously unknown elements. The competition among research teams during these periods fostered not only rapid naming but also innovative and varied approaches to nomenclature, from celestial themes such as plutonium and neptunium to highly localised references like the Ytterby cluster in Sweden. This confirms Jones's (2005) insight that naming disputes and decisions are often embedded within geopolitical rivalries and scientific prestige contests.

Taken together, these findings provide robust answers to the research questions. The linguistic origins of element names are historically stratified, with classical roots dominating early discoveries and modern-language innovations appearing only in the recent past. Cultural and political forces have consistently shaped nomenclature, from the mythological lexicon of ancient civilisations to the honorific conventions of the modern scientific world. Chronological mapping reveals that thematic variety expands most significantly during periods of accelerated discovery, suggesting that the pace of scientific progress influences the creativity and diversity of naming practices.

The significance of these findings lies not merely in cataloguing the origins of element names but in demonstrating that nomenclature is an active site where scientific, cultural, and linguistic histories intersect. Chemoetymology, as evidenced by this study, offers a lens through which to view the evolution of scientific thought itself: the transition from a small, elite scholarly tradition rooted in classical education to a globally distributed, collaborative enterprise where naming becomes a means of asserting identity, honouring achievement, and embedding discoveries within the fabric of human culture. By moving beyond anecdotal accounts toward a structured, hypothesis-driven methodology, this research establishes a framework that can be applied to other scientific lexicons, thereby contributing to both the history of science and historical linguistics.

6 Conclusion

The names of chemical elements are not arbitrary labels; they are linguistic artefacts that embody the scientific, cultural, and historical contexts in which the elements were discovered or conceptualised. The study of the origins of these names, here termed chemoetymology, The etymology of chemical elements offers a unique intersection between language, culture, and scientific discovery. By systematically examining the linguistic roots, thematic origins, and historical contexts of all 118 recognised elements, this study has demonstrated that nomenclature is far more than a neutral system of labels. It is, instead, a repository of historical memory, reflecting the intellectual traditions, geopolitical climates, and cultural aspirations of the eras in which discoveries were made.

The findings confirmed that Latin and Greek dominate the earliest strata of element names, preserving the influence of classical scholarship and the legacy of early scientific communication. Modern elements, in contrast, more frequently bear honorific and geographical names, illustrating how contemporary science incorporates recognition, national pride, and institutional identity into its lexicon. Moreover, the analysis revealed that periods of intensified discovery, such as the late nineteenth century and the mid-to-late twentieth century, are marked by greater thematic diversity, supporting the view that scientific competition stimulates creative naming practices.

The implications of this study extend beyond the history of chemistry. Chemoetymology emerges here as a productive interdisciplinary field, bridging historical linguistics and the history of science. Understanding the patterns and motivations behind scientific naming not only enriches our grasp of scientific culture but also invites reflection on how present and future naming decisions will be viewed as historical artefacts.

This research is not without limitations. While the dataset included all recognised elements, the analysis relied on secondary historical and etymological sources, which may reflect the interpretive biases of earlier scholars. Additionally, while thematic categories were designed to be comprehensive, some names possess overlapping or ambiguous origins that defy neat classification. Future studies might apply this framework to other domains of scientific terminology, such as planetary nomenclature or biological taxonomy, or explore cross-cultural variations in naming practices to assess how non-Western traditions have influenced global scientific language. The journey “from gold to oganesson” reveals that the names of the elements are not merely labels for matter but enduring witnesses to humanity’s evolving relationship with the material world, an evolving lexicon that speaks as much to the aspirations of science as to its discoveries.

References

Emsley, J. (2011). Nature’s building blocks: An A–Z guide to the elements (Revised ed.). Oxford University Press.

Emsley, J. (2011). *Nature’s building blocks: An A–Z guide to the elements* (Revised ed.). Oxford University Press.

International Union of Pure and Applied Chemistry. (2016, June 8). *IUPAC is naming the four new elements nihonium, moscovium, tennessine, and oganesson* [Public review announcement]. https://iupac.org/iupac-is-naming-the-four-new-elements-nihonium-moscovium-tennessine-and-oganesson/

International Union of Pure and Applied Chemistry. (2016, November 30). *IUPAC announces the names of the elements 113, 115, 117, and 118* [Press release]. https://iupac.org/wp-content/uploads/2016/11/Press-Release_Names-Four-New-Elements_30November2016.pdf

International Union of Pure and Applied Chemistry. (2022, May 4). *Periodic table of elements* (latest release). https://iupac.org/what-we-do/periodic-table-of-elements/

International Union of Pure and Applied Chemistry. (2023). *Periodic table of the elements*. https://iupac.org/what-we-do/periodic-table-of-elements/

International Union of Pure and Applied Chemistry. (n.d.). *How to name new chemical elements* [Recommendation]. https://iupac.org/recommendation/how-to-name-new-chemical-elements/

Jones, A. (2005). *Chemical language and nomenclature: History and principles*. Cambridge University Press.

Lavoisier, A. L., Morveau, L. B. G. de, Berthollet, C. L., & Fourcroy, A. F. (1787). *Méthode de nomenclature chimique*. Cuchet. https://doi.org/10.3931/e-rara-12345

Mallory, J. P., & Adams, D. Q. (2006). *The Oxford introduction to Proto-Indo-European and the Proto-Indo-European world*. Oxford University Press.

Miśkowiec, P. (2022a). Name game: The naming history of the chemical elements—Part 1—From antiquity till the end of 18th century. *Foundations of Chemistry, 25*(1), 29–51. https://doi.org/10.1007/s10698-022-09450-x

Miśkowiec, P. (2022b). Name game: The naming history of the chemical elements—Part 2—Turbulent nineteenth century. *Foundations of Chemistry, 25*(2), 215–234. https://doi.org/10.1007/s10698-022-09451-w

Miśkowiec, P. (2023). Name game: The naming history of the chemical elements—Part 3—Rivalry of scientists in the twentieth and twenty-first centuries. *Foundations of Chemistry, 25*, 235–251. https://doi.org/10.1007/s10698-022-09452-9

Oxford English Dictionary. (n.d.). *Oxygen, n.* (3rd ed.). Oxford University Press. https://www.oed.com/

Scerri, E. R. (2007). *The periodic table: Its story and its significance*. Oxford University Press.

Weeks, M. E. (1932). The discovery of the elements. *Journal of Chemical Education, 9*(2), 311–328. https://doi.org/10.1021/ed009p311

Witze, A. (2024, May 14). Superheavy elements are breaking the periodic table. *Scientific American*. https://www.scientificamerican.com/article/superheavy-elements-are-breaking-the-periodic-table/

Yonge, C. J. (Ed.). (2010). *Etymological dictionary of Latin and Greek*. Cambridge Scholars Publishing.

Mallory, J. P., & Adams, D. Q. (2006). *The Oxford introduction to Proto-Indo-European and the Proto-Indo-European world*. Oxford University Press.

Book Review

"Enhancing University Education in Slovakia. Pioneering AI Tools for Achieving Excellence in the Educational Process of English Language and Anglophone Cultures" *by Ivana Pondelíková*

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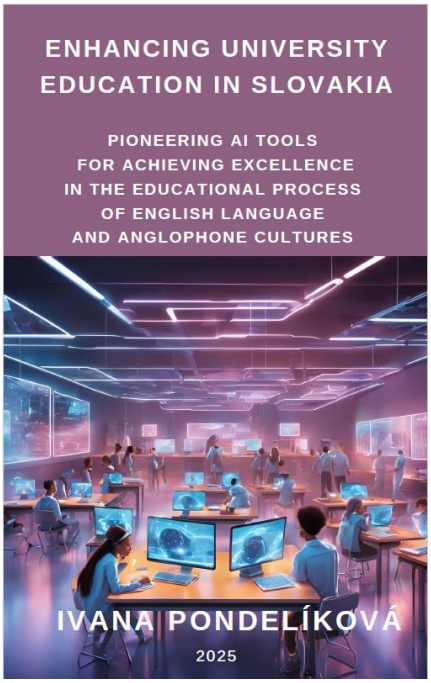
Enhancing University Education in Slovakia. Pioneering AI Tools for Achieving Excellence in the Educational Process of English Language and Anglophone Cultures. by Ivana Pondelíková. 2025. 196 pp. Trnava: University of Ss. Cyril and Methodius in Trnava, Slovakia. ISBN 978-80-572-0489-3.



In a rapidly evolving educational landscape, Ivana Pondelíková's monograph offers a pioneering and timely exploration of how artificial intelligence (AI) can transform English language and anglophone cultural studies in Slovakia. The book provides a structured, critical, and visionary examination of the opportunities and challenges posed by AI in academia, specifically within the humanities. The monograph is not merely descriptive; it is analytical, integrative, and transformative in its impact on how educators and students perceive AI's role in the higher education ecosystem.

The primary aim of the book is to assess and articulate the impact of AI tools on English language education within British and American Studies at Slovak universities. Pondelíková establishes five objectives to guide her inquiry: (1) to assess the technical infrastructure of Slovak universities for AI implementation; (2) to evaluate the cognitive, emotional, and behavioural dimensions of AI usage among students and teachers; (3) to identify how AI tools enhance students' language skills; (4) to

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explore attitudes towards AI's role in producing academic texts; and (5) to examine the ethical implications of AI-assisted academic work. These objectives form the framework for an in-depth investigation that includes a diverse range of perspectives from both educators and students across five Slovak universities.

To address these objectives, Pondelíková formulates ten well-defined research questions and corresponding hypotheses. These touch on themes such as institutional readiness for AI, differential levels of AI literacy between teachers and students, the ethical concerns of AI use in academic writing, and the pedagogical outcomes associated with integrating AI tools. Among these, the hypothesis that students have more extensive experience with AI than their teachers and that AI supports stylistic rather than grammatical development in writing proved particularly illuminating. Overall, eight of the ten hypotheses were validated through a blend of qualitative and quantitative methodologies, affirming the monograph's analytical rigor.

The structure of the book is both logical and pedagogically sound, divided into seven comprehensive chapters. The first chapter lays the theoretical ground by tracing the evolution of AI, from early computational models to contemporary large language models like ChatGPT. The second chapter examines the role of artificial intelligence in British and American studies programs at Slovak universities and describes in detail specific tools and applications. Chapter Three outlines the theoretical and methodological foundations of the research, including models of AI literacy. Chapter Four justifies the selection of the research sample, comprising students and teachers from major Slovak universities. Chapters Five and Six present empirical analyses of student and teacher perspectives, respectively. Finally, Chapter Seven synthesizes findings and provides policy recommendations. The monograph concludes with an insightful reflection on AI's long-term implications for education.

Pondelíková's research methodology is robust. She surveys 302 students and 32 teachers using online questionnaires from various regions of Slovakia, allowing the monograph to analyze the level of AI literacy among students from Comenius University in Bratislava, the University of Ss. Cyril and Methodius in Trnava, Constantine the Philosopher University in Nitra, Matej Bel University in Banská Bystrica, and the University of Prešov in Prešov. A significant contribution of the research is the involvement of university educators who teach English language and Anglophone cultures. While students took part in the survey via online questionnaires, educators contributed their professional perspectives not only through these questionnaires but also by offering valuable insights during in-depth interviews, significantly contributing to the deeper understanding of attitudes toward AI. This mixed-methods approach ensures both breadth and depth, offering a nuanced understanding of AI literacy across demographics. Importantly, the research is framed through the lens of cognitive, affective, and conative dimensions of human thinking, capturing not just knowledge and skill but also attitudes and motivations. This multidimensional approach enriches the empirical analysis and lends credibility to the findings.

The author makes a significant scholarly contribution by bridging the gap between technological innovation and humanistic education. Too often, AI discourse remains confined

to STEM fields, but Pondelíková demonstrates how AI can enhance critical thinking, creativity, and cultural competence in the humanities. Her work is one of the first comprehensive studies in the field of humanities in Slovakia to focus on AI literacy in language and cultural education, thus setting a precedent for future interdisciplinary research. She also foregrounds the ethical dimensions of AI, arguing that digital fluency must be accompanied by a conscientious understanding of AI's broader social impact.

The book's benefits are multifaceted. For educators, it offers a roadmap for integrating AI into curricula while maintaining pedagogical integrity. For students, it provides insight into how AI can support skill development. For policymakers, it outlines the infrastructural and ethical considerations essential for sustainable AI adoption in higher education. Most notably, it stresses the importance of balancing technological advancement with ethical responsibility, a message that resonates strongly in today's digital age. Moreover, the monograph serves as a foundational text for curriculum designers interested in embedding AI literacy into course frameworks.

Key findings from the research include the identification of significant infrastructural gaps in universities, a generational divide in AI usage, and varied levels of ethical awareness. Contrary to expectations, students often demonstrated a more nuanced understanding of AI's ethical boundaries than their teachers. Moreover, while AI tools were found effective in supporting vocabulary acquisition and writing fluency, they were less useful for mastering grammar and critical analysis. This insight suggests a need for guided AI tool usage, especially in the realm of critical thinking and academic writing.

One of the monograph's standout features is its focus on AI literacy as a multi-dimensional construct. Drawing on frameworks by Ng (2021), Selber (2004), and Kennedy (2023), the book categorizes AI literacy into functional, critical, and rhetorical dimensions. This model emphasizes that effective AI integration requires more than just technical proficiency; it demands critical thinking, ethical discernment, and the ability to communicate AI-generated content responsibly. The book also introduces a generational lens, distinguishing between Gen Z students and their teachers, and contextualizing digital proficiency within broader cultural shifts.

The practical applications of the book's findings are far-reaching. The monograph suggests targeted interventions such as teacher training programs, AI awareness workshops, and the development of institutional guidelines for ethical AI usage. It also advocates for an interdisciplinary approach to AI education, encouraging collaboration between language departments and computer science faculties. These recommendations are supported by concrete data and grounded in the lived experiences of participants.

Reading this monograph was an intellectually enriching experience. Pondelíková avoids both utopian and dystopian extremes, instead offering a balanced and evidence-based perspective. Her ability to weave together theoretical insight, empirical data, and ethical reflection makes the book not only academically rigorous but also practically relevant. The

voices of students and teachers are thoughtfully integrated, lending the research a grounded and humanistic touch. Her writing is both accessible and scholarly, making the text suitable for a broad readership.

In conclusion, Enhancing University Education in Slovakia is an essential text for anyone interested in the intersection of education, technology, and ethics. It is both a wake-up call and a guidebook, urging universities to prepare for an AI-driven future while safeguarding the humanistic values that define education. Pondelíková's work is a beacon for educators navigating the uncharted waters of AI integration and a commendable contribution to contemporary scholarship. The monograph deserves to be widely read, not only in Slovakia but internationally, as a model for how educational institutions can harness the power of AI while remaining true to their core mission of fostering critical, ethical, and engaged learners.

With its rich content, rigorous methodology, and forward-looking perspective, this monograph not only informs but also inspires. It exemplifies how thoughtful scholarship can illuminate paths toward a more equitable and intelligent educational future. As AI continues to shape our world, works like Pondelíková's ensure that humanity remains at the centre of progress.

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