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MODERN PROBLEMS OF APPLIED LINGUISTICS IN THE CONTEXT OF DIGITALIZATION

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Abstract: The article examines the major challenges faced by applied linguistics under the conditions of rapid digitalization. The study focuses on the transformation of language practices in digital communication, the growing role of natural language processing, the imbalance between technologically dominant and low-resource languages, and the methodological difficulties of interpreting large-scale textual data. Special attention is given to the risks of semantic simplification, algorithmic bias, fragmentation of discourse norms, and the unstable balance between linguistic diversity and platform standardization. The paper argues that contemporary applied linguistics must expand beyond its traditional descriptive and pedagogical functions and become an integrative field connecting language theory, computational methods, ethics, and digital policy. It is concluded that the future development of applied linguistics depends on the creation of linguistically responsible digital tools, context-sensitive analytical models, and research strategies that protect both communicative efficiency and cultural plurality.

Keywords: applied linguistics, digitalization, natural language processing, digital discourse, language resources, semantic ambiguity, algorithmic bias, multilingual communication, corpus analysis, linguistic diversity.

СОВРЕМЕННЫЕ ПРОБЛЕМЫ ПРИКЛАДНОЙ ЛИНГВИСТИКИ В УСЛОВИЯХ ЦИФРОВИЗАЦИИ

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Аннотация: В статье рассматриваются ключевые проблемы прикладной лингвистики, возникающие в условиях стремительной цифровизации. Основное внимание уделяется трансформации языковых практик в цифровой коммуникации, усилению роли технологий обработки естественного языка, неравномерности развития ресурсно обеспеченных и малоресурсных языков, а также методологическим трудностям интерпретации больших массивов текстовых данных. Особо анализируются риски семантического упрощения, алгоритмической предвзятости, фрагментации дискурсивных норм и нарушения баланса между языковым разнообразием и платформенной стандартизацией. Обосновывается, что современная прикладная лингвистика должна выходить за пределы традиционных описательных и педагогических функций и становиться интегративной областью, соединяющей теорию языка, вычислительные методы, этику

и цифровую политику. Сделан вывод о том, что дальнейшее развитие прикладной лингвистики зависит от создания лингвистически ответственных цифровых инструментов, контекстно чувствительных аналитических моделей и исследовательских стратегий, способных одновременно поддерживать коммуникативную эффективность и культурное многообразие.

Ключевые слова: прикладная лингвистика, цифровизация, обработка естественного языка, цифровой дискурс, языковые ресурсы, семантическая неоднозначность, алгоритмическая предвзятость, многоязычная коммуникация, корпусный анализ, языковое разнообразие.

RAQAMLASHTIRISH SHAROITIDA AMALIY LINGVISTIKANING ZAMONAVIY MUAMMOLARI

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Annotatsiya: Maqolada tez sur'atlar bilan kechayotgan raqamlashtirish sharoitida amaliy lingvistika oldida paydo bo'layotgan asosiy muammolar tahlil qilinadi. Tadqiqotda raqamli muloqotda til amaliyotlarining o'zgarishi, tabiiy tilni qayta ishlash texnologiyalarining kuchayib borayotgan roli, resurslarga boy va kam resursli tillar o'rtasidagi nomutanosiblik hamda katta hajmdagi matnli ma'lumotlarni talqin qilishdagi metodologik qiyinchiliklar yoritiladi. Alohida ravishda semantik soddalashtirish, algoritmik tarafkashlik, diskurs me'yorlarining parchalanishi va til xilma-xilligi bilan platformaviy standartlashtirish o'rtasidagi beqaror muvozanat xavflari ko'rib chiqiladi. Maqolada zamonaviy amaliy lingvistika an'anaviy tavsifiy va pedagogik vazifalardan chiqib, til nazariyasi, hisoblash usullari, etika va raqamli siyosatni bog'laydigan integrativ sohaga aylanishi zarurligi asoslanadi. Xulosa qilinishicha, amaliy lingvistikaning kelgusi rivoji lingvistik mas'uliyatga ega raqamli vositalar, kontekstga sezgir tahliliy modellar va kommunikativ samaradorlik bilan madaniy rang-baranglikni birgalikda himoya qiluvchi tadqiqot strategiyalarini yaratishga bog'liq.

Kalit so'zlar: amaliy lingvistika, raqamlashtirish, tabiiy tilni qayta ishlash, raqamli diskurs, til resurslari, semantik noaniqlik, algoritmik tarafkashlik, ko'p tilli muloqot, korpus tahlili, til xilma-xilligi.

Introduction. The contemporary stage of social development is inseparable from digitalization. Communication, education, administration, commerce, and cultural exchange increasingly depend on platforms that record, classify, reproduce, and transform language in real time. Under such conditions, applied linguistics can no longer remain limited to language teaching, lexicography, translation practice, or speech norm regulation in their conventional forms. It is now directly involved in the design of digital interfaces, the construction of language corpora, the interpretation of online discourse, and the evaluation of automated language technologies. Digitalization has therefore expanded both the practical relevance and the internal complexity of the discipline.

The problem is not merely that language has entered a new technological environment. More importantly, digitalization has altered the scale, speed, and institutional context of language use. Text is produced in volumes that exceed the capacity of traditional manual analysis. Spoken communication is increasingly converted into data streams. Search engines, recommendation systems, and conversational agents mediate access to information and influence lexical choices, discursive styles, and communicative expectations. This means that applied linguistics must work with language not only as a human phenomenon, but also as a data object shaped by platforms, algorithms, and interface logics [1; 4].

At the same time, the digital turn has generated a set of contradictions. Technologies designed to facilitate communication may reduce contextual richness. Automated tools increase speed, yet they often flatten semantic nuance. Global platforms create wider access, but they also reinforce asymmetries between

dominant and less-resourced languages. Linguistic data become more available, while the ethical conditions of their collection and processing remain uneven. These tensions show that the current challenges of applied linguistics are not technical in a narrow sense; they are epistemological, methodological, social, and normative at once.

The relevance of the topic is determined by the need to understand how applied linguistics should respond to the growing dependence of communication on digital infrastructures. If the discipline fails to adapt, it risks becoming observational rather than intervention-oriented. If it adapts uncritically, it risks dissolving into technical service work for computational systems. A balanced response requires a renewed view of applied linguistics as a field that can preserve human-centered interpretation while engaging productively with machine-based processing.

The purpose of this article is to identify and analyze the main contemporary problems of applied linguistics in the context of digitalization. To achieve this goal, the article examines: the transformation of language practices in digital environments; the methodological and technological difficulties of automated language processing; the vulnerability of low-resource languages; and the ethical as well as strategic tasks facing applied linguistics in the coming years.

1. Transformation of applied linguistics in the digital environment

Applied linguistics historically developed as a practice-oriented branch of linguistic knowledge. Its classical tasks included language teaching methodology, translation support, terminology management, lexicographic work, language planning, speech pathology assistance, and the standardization of communication in institutional settings. In the digital era, these functions have not disappeared, but they have been reconfigured. The discipline is now expected to operate at the intersection of language, data, software, and social interaction. This shift changes not only the tools of research, but also the very object of applied analysis.

Digital communication differs from traditional communication in several respects. First, it is multimodal: written text is combined with audio, video, hyperlinks, emoji, visual templates, and algorithmically curated reactions. Second, it is persistent and scalable: utterances are stored, replicated, and redistributed far beyond their original context. Third, it is platform-dependent: the architecture of a social network, a search interface, or a messaging application shapes how people formulate messages and how those messages are interpreted. Applied linguistics must therefore analyze language within technologically organized ecologies rather than as isolated verbal output [2; 3].

This transformation affects linguistic norms. Digital environments encourage compression, hybridization, code-switching, and flexible punctuation practices. In many contexts, the communicative value of a message depends less on grammatical completeness than on timing, recognizability, and platform-specific conventions. Hashtags, memes, abbreviations, and visual-verbal hybrids become part of ordinary discourse. For applied linguistics, this creates a methodological dilemma: should these forms be treated as deviations from norm, or as emergent normativity within a changing communicative order? The answer cannot be purely prescriptive, because digital usage often stabilizes faster than institutional codification.

The educational dimension of applied linguistics has also changed. Language learning today is mediated by online platforms, automated feedback systems, interactive subtitles, gamified mobile applications, and AI-based tutors. These tools can broaden access and personalize practice, yet they may also privilege measurable fragments of language - such as vocabulary recognition or isolated grammar choices - over discourse competence, pragmatic sensitivity, and socio-cultural appropriateness. Thus, digitalization expands instructional possibilities while simultaneously narrowing certain understandings of language proficiency.

In translation and intercultural communication, digital tools have produced similar ambivalence. Machine translation systems can process vast quantities of text rapidly and are useful for routine informational access. However, their efficiency often conceals unresolved problems of context, genre, irony, politeness, metaphor, and institutional register. Applied linguistics must therefore move from a simple

opposition between human and machine translation toward a more nuanced framework in which automation is evaluated according to communicative purpose, linguistic distance, and contextual stakes [5; 7].

Another crucial transformation concerns data itself. Digitalization has made corpora larger, more dynamic, and more heterogeneous. Researchers can now collect real-time discourse from social media, forums, educational platforms, and multilingual repositories. Yet abundance does not automatically lead to better interpretation. Large datasets may contain bias, duplication, demographic imbalance, or context loss. Applied linguistics must therefore develop stronger principles of corpus design, annotation, sampling, and critical interpretation, because the credibility of digital language analysis depends not on volume alone, but on representativeness and interpretability.

2. Key problem areas of applied linguistics under digitalization

One of the most serious contemporary problems is semantic reduction in automated processing. Many digital systems work effectively with statistical regularities, frequent patterns, and probabilistic predictions. However, human communication is saturated with implicature, presupposition, ambiguity, intertextuality, irony, stance, and culturally embedded meaning. When language technologies prioritize surface-level pattern recognition, deeper semantic structure may be simplified or misrepresented. From the point of view of applied linguistics, this is not a minor error rate issue; it is a structural limitation that affects the reliability of digital mediation in education, public communication, law, and customer interaction [6; 8].

A second problem is algorithmic bias. Language technologies are trained on datasets that reflect existing social, cultural, and institutional distributions. If those datasets overrepresent certain groups, registers, or ideological positions, the resulting systems may reproduce asymmetry under the appearance of neutrality. Bias can appear in speech recognition that underperforms for particular accents, in translation systems that normalize gender stereotypes, or in moderation tools that interpret linguistic variation as deviance. Applied linguistics is especially important here because it can identify where bias is embedded in lexicon, syntax, discourse patterns, and communicative expectations rather than in isolated words alone [9; 10].

A third problem concerns the unequal position of languages in the digital sphere. High-resource languages benefit from large annotated corpora, standardized orthographies, commercial incentives, and sustained technical development. Low-resource languages often lack digitized texts, robust morphological analyzers, reliable speech datasets, and large user markets. As a consequence, digital tools for such languages remain limited, inconsistent, or absent. This creates a feedback loop: the less a language is technologically supported, the less visible and usable it becomes in digital life. Applied linguistics must therefore treat digital inclusion as part of language policy and not merely as a technical afterthought [11; 12].

A fourth problem is the fragmentation of discourse norms. Digitalization has produced a communication environment in which genres merge and register boundaries blur. Personal expression, institutional messaging, advertising, political discourse, and entertainment increasingly coexist within the same interface. This leads to rapid circulation of unstable forms of evaluation, argumentation, and evidence presentation. Applied linguistics must confront the difficulty of describing discourse when norms are distributed across communities, algorithms, and platform affordances rather than stabilized by a single institutional center.

A fifth problem is methodological overreliance on quantification. Digital corpora and computational tools encourage frequency-based, pattern-based, and scale-based analysis. These methods are valuable, yet they can create the illusion that what is measurable is automatically what is linguistically central. In reality, low-frequency phenomena may be pragmatically decisive, and local context may alter the meaning of highly frequent expressions. Applied linguistics in the digital era must resist the temptation to replace interpretation with counting. Quantitative approaches need to be combined with discourse analysis, sociolinguistic contextualization, and interpretive verification [3; 13].

Finally, there is the problem of ethical responsibility. Language data are often collected from users who do not fully understand how their texts, voices, or interaction patterns will be reused. In educational settings, learner data may be processed to optimize feedback; in commercial settings, customer speech may be analyzed to predict behavior; in public platforms, discourse may be monitored to classify risk or influence. Applied linguistics cannot treat such issues as external to the discipline. Once language becomes a resource for automated decision-making, questions of consent, transparency, accountability, and communicative justice become integral to applied linguistic expertise.

3. Strategic directions for the development of applied linguistics

In response to these challenges, applied linguistics must develop along several interconnected directions. The first is interdisciplinary integration without disciplinary self-loss. Cooperation with computer science, data science, cognitive studies, education, and media studies is necessary, but applied linguistics should not become merely a supplier of labels and examples for technical models. Its distinctive contribution lies in explaining context, variation, communicative intention, discourse structure, and the social meaning of language choices. Preserving this contribution is essential if digital systems are to become more linguistically adequate rather than only more computationally efficient.

The second direction is the creation of context-sensitive language resources. Many existing datasets privilege standard written forms and underrepresent spoken variation, regional diversity, genre specificity, and multilingual switching. For more equitable and realistic digital tools, applied linguistics should support the compilation of corpora that capture actual communicative environments. This includes educational discourse, public service interaction, youth communication, minority language practices, and professional registers. Resource building is not a mechanical process; it requires principled decisions about inclusion, annotation, balance, and interpretive framing.

The third direction is support for low-resource and nationally significant languages. Digitalization will remain linguistically unequal unless institutions invest in dictionaries, tagged corpora, speech databases, terminology banks, and open-source language tools for less represented languages. Applied linguistics can provide the theoretical and descriptive basis for such work by clarifying grammatical structure, discourse patterns, lexical innovation, and orthographic variation. In this sense, the field contributes not only to science, but also to cultural continuity and digital sovereignty.

The fourth direction is methodological pluralism. The future of applied linguistics does not lie in choosing between traditional qualitative methods and computational methods. Rather, it lies in designing research that moves between them. Computational analysis can detect large-scale tendencies, while close reading and discourse interpretation can explain why those tendencies matter. Classroom observation can reveal user experience behind automated assessment. Sociolinguistic interviewing can illuminate the gap between recorded usage and platform-shaped behavior. Such combinations make digital language research more robust and more socially meaningful.

The fifth direction is the ethical governance of language technologies. Applied linguistics should participate in the development of evaluation criteria for machine translation, educational feedback tools, speech interfaces, moderation systems, and conversational agents. These criteria should include not only accuracy and speed, but also fairness, interpretability, register sensitivity, multilingual balance, and respect for communicative context. When language technologies are judged only by technical performance, they may appear successful while producing subtle linguistic harm.

The sixth direction concerns education and professional training. Future specialists in applied linguistics must be prepared to work with corpora, annotation systems, interface analysis, and digital communication datasets, but they must also remain trained in semantics, pragmatics, sociolinguistics, discourse theory, and research ethics. A digitally updated curriculum should not narrow linguistic education; it should broaden professional competence. The expert of the future will need to speak both the language of linguistic explanation and the language of digital systems design.

Taken together, these directions suggest that applied linguistics should not react defensively to digitalization. It should act as a field capable of shaping digital communication norms, improving language technologies, and defending linguistic diversity in environments dominated by scale, speed, and standardization. Such a role requires institutional support, theoretical clarity, and a long-term commitment to human-centered language analysis.

An additional strategic issue is the relationship between platform governance and linguistic autonomy. Digital platforms increasingly determine which scripts are easily supported, which lexical items are searchable, how abusive language is classified, and which communicative styles are rewarded by visibility metrics. Applied linguistics should engage with these governance mechanisms critically, because they influence real language behavior long before formal language policy responds. In effect, digital infrastructure has become a hidden regulator of language practice.

There is also a growing need for evaluation cultures that include end users. Teachers, translators, students, public servants, and speakers of minority languages interact with language technologies in ways that are often invisible in technical benchmarking. Applied linguistics can bridge this gap by developing user-centered assessment frameworks that capture communicative adequacy, trust, repair effort, and interpretive burden. Such frameworks would make the study of digital language tools more realistic and socially accountable.

For this reason, the discipline should strengthen its public role. Beyond academic research, applied linguistics can contribute to standards for educational technology, public sector language access, inclusive interface design, and multilingual information policy. The field becomes most valuable when it does not merely describe the linguistic effects of digitalization, but actively participates in shaping conditions under which digital communication remains understandable, equitable, and culturally responsive.

Another unresolved issue concerns temporal instability in digital language data. Platform norms change quickly: interface updates alter message length, recommendation systems reshape visibility, and communities migrate across applications with different affordances. A corpus collected at one point in time may become methodologically outdated much faster than traditional printed material. Applied linguistics therefore needs dynamic research protocols capable of tracking rapid shifts without sacrificing analytical comparability.

The same applies to terminology. Digitalization continuously introduces new lexical units related to platforms, online practices, interface actions, moderation mechanisms, and AI-mediated communication. These units often spread internationally before local language communities establish stable equivalents. Applied linguistics should play a stronger role in observing such lexical diffusion, distinguishing temporary fashion from durable integration, and supporting terminology choices that remain functional in education, media, and public administration.

Pragmatic competence also requires renewed attention. In digital environments, users must interpret silence, delay, reaction icons, screenshot circulation, algorithmic prompts, and semi-automated replies. These are not peripheral details; they are part of meaning-making. Applied linguistics should expand pragmatic analysis to include technologically mediated signals that influence politeness, authority, emotional tone, and interpersonal alignment. Without such expansion, descriptions of communication remain incomplete.

It is equally important to rethink authorship and agency. Many digital texts are collaboratively produced, partially edited by predictive systems, or generated with AI assistance. This complicates traditional assumptions about intention, originality, error, and responsibility. Applied linguistics can contribute by developing analytical categories for mixed human-machine authorship, especially in educational writing, professional correspondence, and public communication, where the boundary between support and substitution is increasingly blurred.

Finally, digitalization calls for stronger regional and local research agendas. Global technological debates are often dominated by English-language data and commercially visible platforms. Yet

communicative realities differ across societies, educational systems, and linguistic ecologies. Applied linguistics should build locally grounded evidence about how users navigate multilingual interfaces, how national languages function online, and which digital barriers matter most in specific institutional settings. Such work is necessary for policy relevance and for the diversification of international scholarship.

Conclusion. The study has shown that digitalization does not simply provide applied linguistics with new instruments; it fundamentally changes the discipline's problem field. Language is increasingly processed, categorized, and redistributed through digital infrastructures that influence what can be said, how it is interpreted, and which varieties become visible or marginalized. Under these conditions, applied linguistics faces a set of intertwined challenges: semantic simplification in automated systems, algorithmic bias, unequal technological support for languages, unstable discourse norms, methodological imbalance, and unresolved ethical questions.

These problems demonstrate that applied linguistics in the digital era must operate simultaneously on descriptive, analytical, technological, and normative levels. It should examine real communicative change, contribute to the design of better language tools, protect the interests of low-resource languages, and develop evaluation standards that place linguistic adequacy alongside computational performance. The discipline becomes especially important precisely because digital systems cannot independently account for the full complexity of meaning, context, and social interaction.

Therefore, the future of applied linguistics depends on its ability to remain theoretically grounded while becoming technologically literate and socially interventionist. A productive response to digitalization is not rejection of automation, nor uncritical celebration of it, but the construction of responsible frameworks in which digital innovation is guided by linguistic knowledge, ethical reflection, and attention to cultural diversity. In this perspective, applied linguistics emerges as one of the key humanities-based disciplines for understanding and humanizing communication in the digital age.

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