



Понятийно-категориальный аппарат микрообучения в аспекте преподавания иностранных языков

К. В. ЛЫКОВА, Н. Х. САВЕЛЬЕВА

АННОТАЦИЯ

Введение. Феномен информационной перегруженности, который стал наиболее актуален в эпоху современных цифровых технологий, создает острую потребность в новых образовательных подходах, среди которых микрообучение выступает одним из ключевых. Настоящее исследование рассматривает микрообучение в контексте преподавания иностранных языков с точки зрения его функционирования как самостоятельного учебного метода, отвечающего запросам современного общества.

Целью исследования является анализ понятийно-категориальной составляющей феномена и определение места микрообучения в системе подходов и методов иноязычного образования.

Материалы и методы. В ходе исследования авторы обращаются к таким теоретическим методам, как анализ научной литературы с последующей систематизацией и анализом полученных данных. К материалам исследования относятся рекомендации ЮНЕСКО, научно-методические статьи из периодических изданий, методические пособия и рукописи российских и зарубежных авторов по данной проблематике. Вторая фаза исследования предполагает работу с базой данных рецензируемой научной литературы Scopus, а также применение методологии PRISMA для отбора научных публикаций, необходимых для проведения качественного анализа.

Результаты. В ходе проведенного исследования было определено, что микрообучение может классифицироваться как самостоятельный учебный метод. Также, микрообучение обладает достаточным методологическим инструментарием, который обеспечивает эффективность его применения на уроках по иностранному языку. Качественный анализ научных исследований показал, что микрообучение активно применяется в рамках учебных курсов в учреждениях высшего профессионального образования как вспомогательный инструмент, повышающий уровень усвоения учебного материала и успешно адаптирующий цифровые технологии под нужды учебного процесса.

Заключение. Полученные в ходе исследования данные позволяют получить более полное представление о том, каким образом используется основная методологическая терминология в области иноязычного образования (понятия: методика, подход, метод, техника, педагогическая технология) в России и за рубежом; что, в представлении современных ученых и педагогов-практиков, представляет собой микрообучение; а также, какое место микрообучение занимает в современной методологической науке.

КЛЮЧЕВЫЕ СЛОВА

иностранные языки, методика преподавания иностранных языков, микрообучение, понятийно-категориальный аппарат

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Microlearning in language education: conceptual framework

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ABSTRACT

Introduction. Microlearning, a new educational method gaining traction in the foreign language teaching field, remains a subject of ongoing research and study. While the concept of “micro” in pedagogy has grown in popularity, its methodological component requires a more comprehensive investigation.

Aim. In light of this gap in the existing body of research, the aim of this particular study was to explore the conceptual and categorical components of microlearning, and determine its place within the system of approaches and methods in foreign language education. By analyzing various perspectives on microlearning, the authors aim to determine if microlearning can be conceived of as a distinct method within the framework of other foreign language education approaches.

Research methods. The authors employ theoretical methods such as the analysis of scholarly literature, followed by the systematic organization and analysis of the acquired data. The research materials encompass UNESCO recommendations, articles from academic journals, methodical books, and other works by both Russian and international authors on the subject. During the second phase, the researchers utilize the Scopus database, supplemented by the PRISAM methodology to deliberately select research papers essential for conducting a qualitative analysis.

Results. Through the course of the research, it has been determined that microlearning can be classified as an independent educational method. Furthermore, it has been found that microlearning incorporates a sufficient methodological foundation that guarantees its effectiveness in foreign language teaching. A thorough examination of academic research has revealed that microlearning is frequently employed within higher education institutions as an auxiliary teaching method, enhancing the level of student comprehension and successfully integrating digital technologies to meet the requirements of contemporary educational processes.

Conclusion. The results of the study enable us to gain a more thorough understanding of the key methodological terms used in the sphere of foreign language teaching (concepts such as methodology, approach, method, technique, and pedagogical technology) within both Russian and international educational environments. The research also seeks to elucidate the perspective of modern scholars and practicing teachers regarding microlearning, and explore its position within current methodological science.

KEYWORDS

microlearning, foreign language teaching, teaching methods, teaching approaches, language education, conceptual framework

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INTRODUCTION

Microlearning has grown increasingly popular in recent years, becoming one of the most effective and widely used teaching methods in various fields of education. This surge in popularity can be attributed to the method's ability to address current educational trends, which are spurred by the evolving landscape of the learning environment marked by an abundance of information. As K. Leong and colleagues point out, the era of information overload has forced us to face the problem of insufficient attention span [28], as evidenced by various studies, in particular a study conducted in 2022 by King's College London among adults [24]. According to UNESCO, the development of innovative foreign language teaching approaches in the digital era is crucial to enhancing the efficiency of language education [54]. Likewise, according to R. Florida [17] and H. Ogata and Y. Yano [35], microlearning represents a growing research area designed to explore novel methodologies for catering to the burgeoning need for lifelong learning or learning demands among knowledge workers. To this end, as prescribed by the federal law "About Education" in Russia, lifelong learning constitutes one of the primary avenues for the advancement of education.

For the present moment microlearning is being actively implemented in different fields. For example, the applications of microlearning have been widely studied in textiles [8], health professional education [12; 13], engineering [43], college physical education [56] and language learning [16]. As an example, in the field of language education, research has been conducted to analyse the effectiveness of microlearning in teaching English speaking skills [39], as well as using microlearning tools for language skill development with peers [18].

Despite its increasing recognition, microlearning remains understudied in language education, with a lack of a methodology-theoretical basis of the concept. The understanding of a new phenomenon begins with identifying its role and position within the overall system. Language teaching methodology comprises multiple components, and every pedagogical concept must be categorised as a method, approach, or technique, among other things. In this article, the goal is to delve into the conceptual framework of microlearning with respect to language education to determine which category it falls into. Based on the above, the research questions for this study are:

RQ1: How is microlearning perceived among different scholars, and which terminology is most frequently applied to it?

RQ2: Does microlearning meet the criteria in its design and procedural aspects to be considered an independent method of learning?

By addressing these questions, it is hoped that this study will contribute to a better understanding of the functions microlearning should carry out within the learning process, and ultimately simplify the process of developing microlearning teaching models suitable for use in language education.

MATERIALS AND METHODS

This study includes a systematic literature review as well as two stages of database searches.

1. Systematic literature review

We conducted a systematic literature review of academic literature to identify the terminological framework used in foreign language teaching methodology. Specifically, we focused on the concepts of "methodology", "approach", "method", "technique", and "pedagogical technology". We sought to clarify the definitions of these concepts to avoid confusion in our study. To undertake the analysis, we conducted an in-depth review of works by both Russian and foreign scholars. This allowed us to take a cross-cultural approach and compare how different researchers approached the topic of language pedagogy.

In our study, we reviewed a diverse array of sources, including fundamental documents such as recommendations issued by UNESCO, federal laws like Russia's "About Education", as well as scientific and methodological articles from periodicals dedicated to language education research (Research in

Learning Technology, Journal of Education and e-Learning Research, Journal of Research in Innovative Teaching & Learning, Journal of Learning for Development, Asian Journal of University Education, Perspectives of Science and Education, International Journal of Learning, Teaching and Educational Research, TechTrends, etc.). To gain a comprehensive understanding of the terminology used in foreign language teaching methodology, we turned to handbooks written by prominent methodologists, including Bespalko, Harmer, Mirolyubov, Richards, Rodgers, Selevko, Shchukin, and Slastenin, as well as manuscripts on the research problem written by Hug, Kapp, Langreiter, Bolka, and Souza.

2. Database search

2.1 First phase

To gauge the implementation of the investigated terminological units in real research, we performed an electronic database search using Scopus. Our search scope was limited to articles related to language education published between 2019 and 2024, with headlines including the primary keywords: 'methodology,' 'approach,' 'method,' 'technique,' and 'pedagogical technology.' We conducted the search query between March and April 2024. Our search retrieved a total of 224 publications in English. We conducted the database research in four stages:

1. Keyword search: We counted the number of publications in the Scopus database containing the specified keywords in their headlines (methodology, approach, method, technique, and pedagogical technology) for the entire period and the last five years.
2. Comparison and ranking: We compared and ranked the keywords according to the number of publications containing each of them, with a focus on understanding the trends and patterns of usage over time.
3. Analysis of the popularity of terminology by country: We analysed the number of publications containing each of the keywords by country, in order to gain insights into the distribution and usage of terminology in different language education research communities.
4. Screening: We conducted a screening process to identify the collocations of the keywords with other relevant terms in the research headlines.

2.2 Second phase

We used the PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) methodology to select publications for the further qualitative analysis. At the first stage, we identified 279 articles with the keyword 'microlearning' and 'micro-learning'. We put the articles within the 'title, abstract and keyword' field on the Scopus search engine.

The second stage involved screening the manuscripts identified at the first stage based on specific criteria, including the publication year range (2019-2024), open access content, source type as journals, and the language of study as English. We added a keyword 'language' in attempt to narrow the scope to the studies in language education. Only six articles met the indicated criteria. That is why we decided to broaden the research scope and not restrict it with only one field of study for the data to be more representative. Without this restriction, we identified 64 publications.

At the third stage the scope of the research was also limited to include systematic reviews and practical research works, which is in line with the aims of the study. We reviewed the research abstracts to assess whether they were appropriate for achieving our research goals. The total number of publications chosen for the qualitative research constituted 16 papers.

LITERATURE REVIEW

1. Microlearning

Microlearning as a novel teaching method and such terms as microcontent and micromedia became widespread in the beginning of 21st century, along with rapid technological development and redundant information flow [21, p. 16]. Due to hyper-connectivity and information overload

individuals face a daunting task of sifting through a vast array of educational resources. While this abundance of information can be beneficial, it also creates challenges in identifying the most relevant and valuable content. As Langreiter et al. posit, microlearning reflects the increasing fragmentation of informational resources and components within the learning process, especially in fast-growing fields characterised by rapid development and high rates of change [27, p. 79].

To echo Souza, the term 'microlearning' refers to a method of learning that places great emphasis on smaller learning units. This style of learning is centered on short-term educational activities and focuses on smaller-sized sources of information [51]. N. F. Alias et al. also mentions that the core principle of microlearning is that the learning content should be concise, thoroughly designed and focused [2, p. 269].

L. Stracqualursi and P. Agati put microlearning in the same row with other novel ways of teaching and learning such as adaptive learning, immersive learning and gamification. The authors provide a short description of microlearning as a set of bite-sized learning modules designed for students that have limited time and attention spans [52]. P. Prasittichok and P. Smithsarakarn in their systematic review describe microlearning as presenting concise content with a short-learning design, offering easy-to-understand lessons to minimize confusion, providing unambiguous practical guidelines and ensuring easy access [40, p. 531].

According to T. Hug, there are seven key components of micro learning, including time, content, curriculum, form, process, modality, and learning type which are important during design aspect of micro learning [21]. T. B. Lalitha and P. S. Sreeja provide a comprehensive observation of basic microlearning characteristics which include those of brevity, focused learning objectives, multi-modal content, just-in-time learning, repetition and reinforcement, mobile compatibility. As for the advantages, microlearning's key beneficial points are efficiency, engagement, flexibility, retention and accessibility [26, p. 231].

Currently, microlearning is being studied in higher education, particularly in second language acquisition, medical education, and vocabulary learning, with R. Sankaranarayanan et al. concluding that microlearning has been implemented as an instructional method strategy and intervention in various educational contexts, including design, teaching methods, professional development, blended learning, language acquisition, and adult learning [45].

2. The conceptual framework of foreign language teaching methodology

To gain clarity on microlearning's place within the broader field of methodological science, we need to examine its relationship to other concepts in the realms of pedagogy. As the pedagogical science evolved, various terms were established in linguadidactics, including pedagogical system, approach, method, technique along with methodology, and pedagogical technology. Pedagogical systems describe the assembly and relationships between elements that contribute to an entire structure and organisation of an education object [55, p. 47]. Methodology, approach, method, technique, and pedagogical technology are all structural elements that comprise a pedagogical system, with each having unique characteristics and a specific purpose. To better understand the relationship between these elements, we can consult the schemes provided by I. V. Mozelova and S. S. Mikova (Figure 1) [33].



Figure 1 Hierarchical interrelation of the methodological units within different terminological systems

Figure 1 Adapted from Ponjatija «metodika», «metod», «tehnologija», «podhod» i «priem» v lingvodidaktike [The notions of methodology, method, technology, approach and technique in linguodidactics], by I. V. Mozelova, S. S. Mikova, 2022, Rhema, 1, p. 86-108 (doi: 10.31862/2500-2953-2022-1-86-108). Copyright 2022 by Moscow Pedagogical State University.

According to the presented schemes, the usage of these terms depends on the author's perspective and the specific scientific study at hand. Additionally, nuances regarding these terms may vary among scholars, causing confusion for those unfamiliar with academic jargon. To precisely understand and accurately classify microlearning, it is crucial to thoroughly analyse the specific application of each notion in the context of foreign language teaching.

2.1 Methodology

By analysing various concepts in contemporary methodological science, it can be seen that the notion of methodology is often poorly defined and misunderstood. According to T. Rodgers, the term is frequently used to encompass any relevant aspect of language education without any clear direction or purpose [41]. J. Harmer considers methodology to encompass a range of different elements in the field of English teaching, making it an umbrella term for methods, approaches, techniques, models, and procedures [19, p. 78]. Similarly, A. Philominraj and colleagues in their systematic review on language education employ the term 'methodology' as a general notion encompassing various methods and approaches in language teaching, and link it to curriculum and didactics, which are considered components of education [37].

Nonetheless, M. V. Lyachovitsky argues that foreign language teaching methodology is best understood as a scientific study of the purposes, content, laws, tools, techniques, and methods of teaching [29, p. 33]. This view can be supported by I. L. Bim's definition, which outlines methodology as a science that develops at the crossroads of several other fields, including pedagogy, didactics, linguistics, developmental psychology, and linguistic studies. Furthermore, I. L. Bim states that the objects of methodology include all components of the educational process, and the subject of methodology includes the development of methodology as a science itself [7, pp. 22-23].

E. G. Azimov and A. N. Shchukin propose a comprehensive definition of methodology from three dimensions: a pedagogical science, a combination of teaching methods, forms, and techniques, and a theoretical course of study [4]. A. A. Mirolyubov outlines several categories of problems for contemporary methodology to address, including goal-setting, the teacher's activity, the students' learning experience, and the development of methodology as a science [31, p. 7].

In conclusion, the definition of methodology can be complex and multi-faceted, making it a complex field of study. However, through the analysis of multiple perspectives, it can be seen that methodology can be understood as both a pedagogical science and a combination of teaching methods, forms, and techniques. Additionally, the subject of methodology includes not only the development of methodology as a science but also all components of the educational process.

2.2 Approach, method, technique

According to L. V. Moskvina and A. N. Shchukin, approach is a broad methodological term used in linguadidactics to refer to the general direction in which a subject is taught. For example, the direct, activity, and cognitive approaches are distinct approaches of teaching a foreign language [48]. Richard and Rodgers define approach as 'theories about the nature of language and language learning that serve as the source of practices and principles in language teaching [40].' J. Harmer adds that approach is aimed to describe how the knowledge of language is acquired and makes statements about the conditions that promote successful language learning [19, p.78].

The term method refers to a valid and systematic way in which material is to be presented and learned. According to A. N. Shchukin, method can be seen as a means of cognition, the approach to studying reality, natural phenomena, and society. One more perspective is general didactic, in which method encompasses the system of interdependent actions of a teacher and a student that foster the assimilation of learning material. The third perspective is private didactic, in which method is understood as a manner of learning that determines a particular strategy for students' learning activities [48, p. 266].

As J. Harmer explains, method is a tool that allows for the realisation of a specific approach. It encompasses various aspects such as types of activities, roles of learners and teachers, materials used for learning, and some model for teaching syllabus organisation. Furthermore, he suggests that the more all-embracing and general methods are, the more difficult they are to describe. Hence, methods should be clearly articulated by certain approaches [19, p. 78]. Additionally, J. Harmer

posits that the constituent parts of a 'method' are various procedures and techniques. The researcher considers that techniques, unlike sequential activities, are rather single actions, evidenced by the examples of 'silent viewing' and 'finger technique.' The researcher notes that a number of sequenced techniques form a procedure, which is simpler than a separate method and larger than an individual technique [19, p. 79].

In 1963 E. M. Anthony provided a comprehensive outline of methodological elements, including approach, method, and technique (Figure 2) [40]. According to the researcher, approach is 'the level at which assumptions and beliefs about language learning are specified'. In accordance with Anthony, method is positioned hierarchically after approach, is deeply intertwined with it, and serves to implement the principles of the certain approach in pedagogical practice. Method is the level at which choices are made about the particular skills and the content to be taught. Among notable methods, Anthony mentions grammar translation, suggestopedia, and the Silent way [40, p. 19, cites Anthony]. Technique, being the most practically oriented aspect, completes the hierarchical chain of methodological elements. Its primary goal is to implement a specific method in practice, which can be presented in the form of teaching strategies, tactics, exercises and tasks of various types.



Figure 2 Basic methodological aspects according to E. M. Anthony

With regard to Anthony's theory, J. C. Richards and T. S. Rodgers revised and extended the original model. They believe that methods at the level of design deal with objectives, syllabus, content, instructional materials, and roles for both learners and teachers. In line with the researchers' view, a method is theoretically related to an approach, is organizationally determined by a design, and is practically realized in procedure (Figure 3) [40, p. 20]. Approaches in foreign language teaching can derive from various learning theories, such as the functional and structural views of language. The level of technique in Anthony's model is the implementation phase, which the authors call procedure. It involves classroom techniques, practices, interactional patterns, teaching tactics and strategies used by teachers and learners when the method is being used.

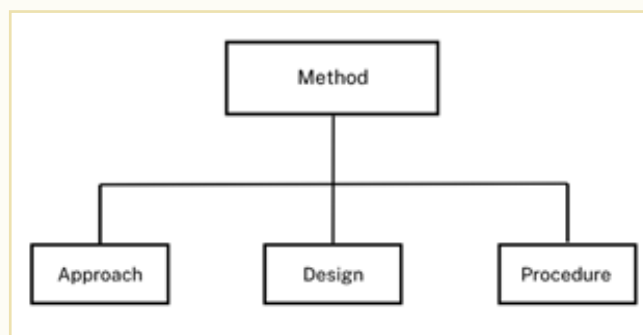


Figure 3 Summary of elements and subelements that constitute a method (according to J. C. Richards and T. S. Rodgers)

Figure 3 Adapted from Approaches and Methods in Language Teaching, by J. C. Richards and T. S. Rodgers, 2001, Cambridge University Press, p. 33. Copyright 2001 by Cambridge University Press.

2.3 Pedagogical technology

Regarding the concept of *pedagogical technology*, both Russian and Western academic literature fail to provide a comprehensive perspective on its correlation with other methodological concepts previously expounded. This is due to the fact that pedagogical technology has not been extensively utilised in educational science until relatively recently. Consequently, a more in-depth examination of the matter is of paramount importance.

In the 1960s, the concept of 'pedagogical technology' captured the attention of Russian and Western scholars. Researchers like A. Lumsdaine, D. Finn, and P. D. Mitchell identified the following features of this phenomenon: planning, realisation, and assessment of pedagogical activity, as well as the purpose of achieving a specific result. P. D. Mitchell offered the most comprehensive definition: pedagogical technology is a field of research and practice (within the system of education) which encompasses all aspects of the organisation of pedagogical systems and the procedure of allocating resources for the goal of obtaining specific and potentially reproducible results. Additionally, the researcher emphasised that this concept should not be limited to teaching techniques alone, but should take into consideration all aspects of education, from lesson planning to the search for effective ways to organise the educational process [32].

The UNESCO shares the same perspective on the understanding of the notion, defining pedagogical technology as a "systematic way of designing, carrying out and evaluating the total process of learning and teaching in terms of specific objectives and employing a combination of human and technical resources to bring about more effective instruction" [53].

V. P. Bepalko defines pedagogical technology as the "technique of realising the educational process" [6], while V. P. Slastenin et al. understand it as "strictly scientific designing and precise reproduction that guarantees the success of pedagogical actions". According to V. A. Slastenin's textbook, pedagogical technology is comprehensive, interconnected, and systematic. It involves a consistent and interconnected system of teachers' actions aimed at achieving pedagogical goals and a systematic and consistent fulfillment of a pre-designed pedagogical process in practice [49, p. 407].

G. K. Selevko emphasises that the most complete understanding of pedagogical technology can be achieved through consideration of the definitions provided by various authors and resources. He also proposes a multidimensional approach to this phenomenon. According to the author, pedagogical technology encompasses three aspects: scientific, which refers to the pursuit of the most rational ways of learning; procedural-descriptive, which represents a system of methods for implementing pedagogical technology; and procedural-actional, which is the actual learning process itself [47, p. 15].

Our analysis of the works of the authors listed revealed several fundamental principles of pedagogical technology. All the researchers noted that, per the definitions previously discussed, pedagogical technology is defined by clear objectives and an algorithmised nature. Its principles include those of consistency, algorithmisation, standardisation, rational organisation and intentional management, intensification, technisation, and effectiveness as well as the importance of structural and content integrity during the design and implementation of pedagogical technology.

Upon completion of our analysis, we identified several key takeaways concerning pedagogical technology, which show how it can be distinguished from other methodological units. As noted by various authors who have explored this concept, technology has a clearly defined objective that must be completed according to a pre-determined algorithm. The methodologist objectively formulates the expected results of the educational process while working with technology. Additionally, technology guarantees effective end results and can be reproducible by any other teacher in order to achieve similar results. The criterion of objectivity is applied to the methods of control. Additionally, within the pedagogical technology, the learning process is strictly designed to maximise the probability of achieving desired learning outcomes.

Based on our analysis, it becomes clear that the term methodology refers to a scientific subject of study, and covers a broad range of components such as design, methods, approaches, techniques, models, and procedures. However, approaches, which are based on the theories of language learning, generally serve as the basis for methods, which focus on the design of the learning process. Techniques refer to a single action or a sequence of actions, and are utilised to carry out methods at the level of procedure. Finally, the concept of pedagogical technology has not yet achieved

widespread use in language education, but has the potential to serve as a powerful tool for designing effective learning processes. Its goal is to achieve predictable learning outcomes by integrating diverse methods, techniques, and approaches.

RESULTS

Now let's shift from the theoretical framework to practical research works to better understand how both Russian and English-speaking scholars employ the terms 'methodology', 'approach', 'method', 'technique' and 'pedagogical technology' in the context of foreign language teaching.

Methodology. To gain greater insight into the context in which the term 'methodology' is commonly applied, we analysed the headlines of articles submitted to Scopus, an international abstract and citation database for scientists, using search keywords. The total number of indexed documents for the whole period constitutes 24 papers, whereas only ten articles were published from 2019 till 2024 (Figure 4). Furthermore, we found that 29% of the articles used the term 'methodology' within the framework of foreign language teaching among Russian scholars and researchers from the former Soviet countries. The remaining were conducted by scholars from various countries, including Chile, Poland, Croatia, Serbia, the UK, Jordan, Bulgaria, Germany, Iran, the US, and Algeria. This data enabled us to conclude that 'methodology' is more commonly used by Russian-speaking scholars or researchers from countries with a Soviet background, synonymously with the terms 'method' and 'approach'. The paucity of research papers written in English and applying the concept of 'methodology' in the context of foreign language education highlights the limited utilization of the term in foreign academic discourse on language education. We also found two studies that applied the notion of methodology in the context of the methodological approach as a general scientific study direction.

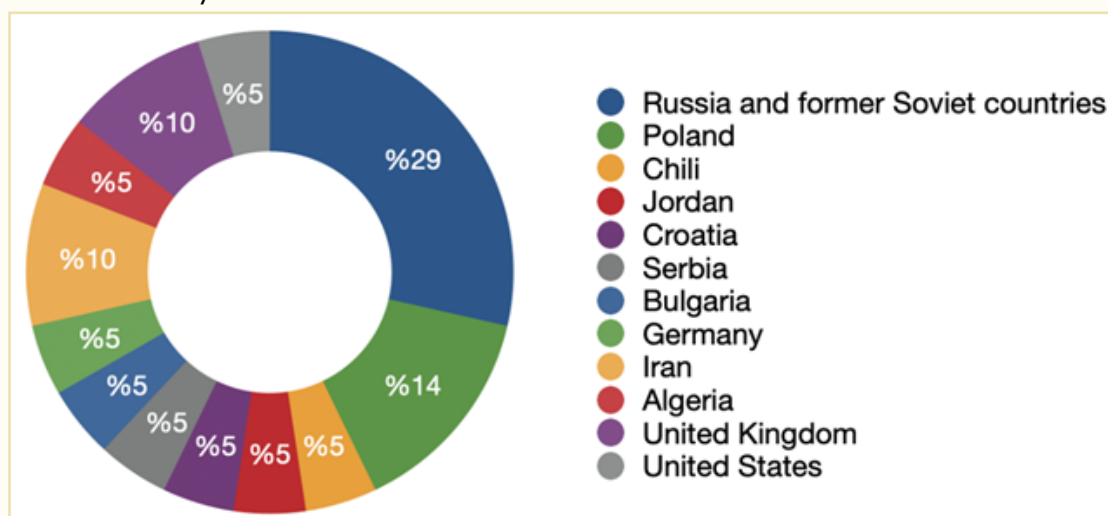


Figure 4 The implementation of the notion 'methodology' in foreign language teaching research

Approach. The total number of papers featuring the term 'approach' in their headlines amounts to 105 across the entire dataset, while 48 of them have been published in the last five years. The majority of publications (33%) belonged to European countries, with Spain and Poland (7 papers) and Germany and France (4 articles) among the leaders. However, looking at individual countries, Russia emerged as the first with 14 publications, followed by the US with 9 articles. The data indicates that the term 'approach' is commonly applied to identify a way of teaching in language education and is a relatively widespread concept in foreign language pedagogy. Upon examining the articles' headlines, the following collocations were repeatedly associated with the term 'approach': pedagogical, dynamic, project-based, constructivist, hermeneutic, multimodal, intercultural, co-cultural, corpus, cognitive, instruction-grammar, action-based, CLIL, and production-oriented. The recurrence of such specific terms suggests that the concept of 'approach' primarily applies to different teaching theories in language education.

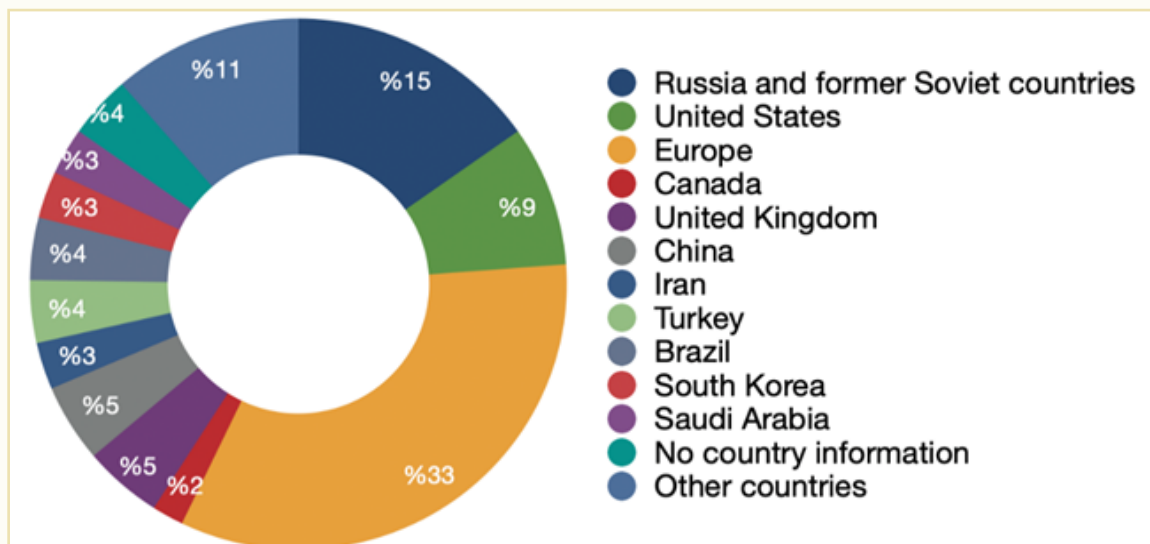


Figure 5 The implementation of the notion 'approach' in foreign language teaching research

Method. Based on our analysis of Scopus data, we found that the term 'method' has been used in the headlines of a total of 72 articles, of which 30 have been published in the past five years. Russia accounts for the largest proportion (60%) of these publications, followed by European countries (20%) and China (7%) (Figure 6). We note that the term is often used in conjunction with other terms such as 'method of teaching', 'method of using', 'interactive method', 'effective methods', 'method of grammar material presentation', 'communicative methods', 'culture teaching methods', 'methods of monitoring speech skills', 'active and interactive methods', 'methods and techniques', 'innovative methods', 'traditional methods', suggesting that method mostly refers to specific ways of teaching, while embodying a particular approach in itself.

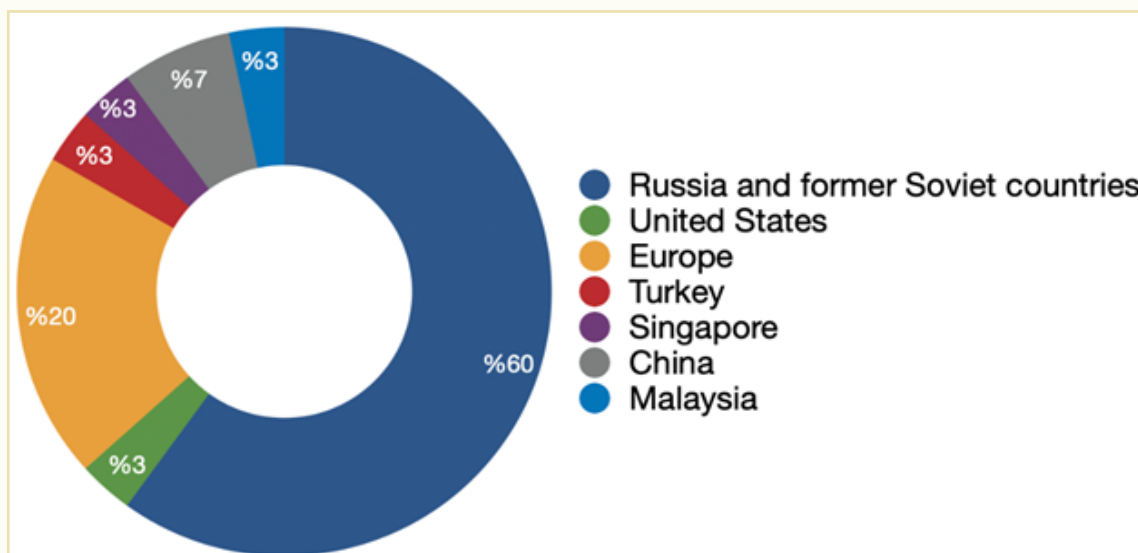


Figure 6 The implementation of the notion 'method' in foreign language teaching research

Technique. Upon analysing the articles' headlines, we found that the term 'technique' appears in 22 articles in total, with 11 published in the past five years (Figure 7). The largest proportion of publications (3 papers each) belongs to Russia and Indonesia. The collocations associated with 'technique' include 'game techniques', 'methods and techniques in language teaching', and 'context-based integrative educational technique'. Therefore, we can conclude that the usage of the term 'technique' is relatively limited compared to other terminologies.

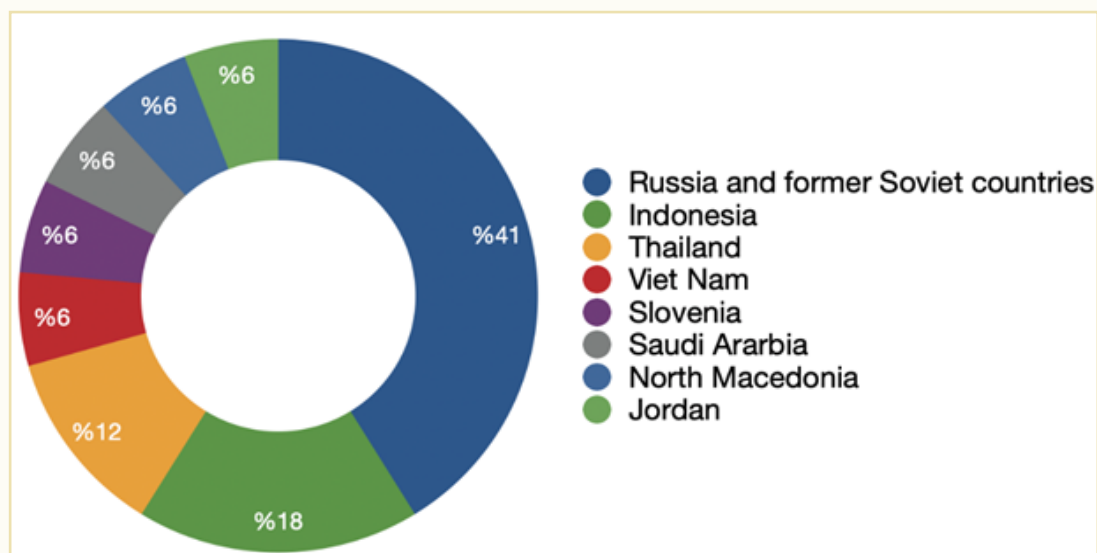


Figure 7 The implementation of the notion 'technique' in foreign language teaching research

Pedagogical technology. Based on our study, we found that the notion of “pedagogical technology” is rarely used in the English-speaking teaching community compared to the Russian-speaking community. While looking through the headlines of scientific articles indexed by Scopus, we noted that articles with the terms “technology”, “pedagogical technology”, or “educational technology” are mostly related to the use of various technological tools in teaching. In addition, we discovered one article by R. Kemsies and G. Hellmayr who identified Content and Language Integrated Learning (CLIL) as a technology [34]. However, we were unable to find any clarification as to why CLIL was referred to in such a way, and therefore it should be assumed that the term was used synonymously to those of ‘approach’ or ‘method’ based on the context provided in the authors' research.

Based on our search, we found additional papers that support the proposition that pedagogical technology relates to Russian terminology. In the article by Kh. F. Makayev et al., the authors discuss the problem of stimulating foreign language communication among students, developing their own pedagogical technology as a methodological tool. They refer to pedagogical technology as a set of methods that lead to a predictable positive result [30]. Likewise, G. A. Krasnoshchekova and O. A. Lagunova describe their methodology of formation of communicative competence with the help of blended learning technology, but don't specify what they imply under the term of technology [25]. S. J. Poluykova and colleagues describe technology as an algorithm, which is used to address a specific problem or task efficiently [38]. In contrast, A. Sokolova et al. understand the term technology as approach or method, and suggest that edutainment technology can be used to enhance language education through gamification or the use of multimedia resources [50]. Overall, the researchers in the reviewed papers associate the concept of pedagogical technology with leveraging specifically designed strategies and algorithms to achieve certain positive learning outcomes.

Based on our analysis of real research papers, we noted that the term ‘methodology’ is predominantly used in Russian-speaking scientific discourse, while it is not commonly applied in English-language research. Researchers tend to use the term approach or method instead. The term ‘approach’ generally refers to a specific theory of learning, while ‘method’ can be used to describe different forms and ways of teaching a foreign language. Additionally, ‘technique’ is commonly understood in both Russian and English scientific discourse as the smallest methodological unit and a constituent part of a method. Finally, the novel term pedagogical technology is mainly used by Russian scholars and refers to an algorithm designed to achieve a certain learning result.

Based on our analysis of scientific research, we found that the language used by researchers can impact the terms they choose to describe their work. English-language articles tend to use words like approach, method, and technique, whereas the word methodology is less commonly used and is primarily utilised to refer to a broad methodological area in language education. On the other hand,

Russian-language articles often use the word methodology to refer to a specific approach or method. This distinction highlights the cultural differences in language use among researchers and how it can impact the terminology they employ in their work.

The Conceptual Framework of Microlearning

Our analysis of terminology in microlearning research revealed that the term 'microlearning' can be classified in several ways. Generally, it can be seen as a concept or a learning style, but it can also be described as a knowledge acquisition process. From a more specific perspective, researchers often refer to microlearning as a method or an approach. Method appears to be the most commonly used term among scholars who have conducted research on microlearning. Overall, after analysing various research papers on microlearning in language education, we found that there are three main ways in which the phenomenon has been represented.

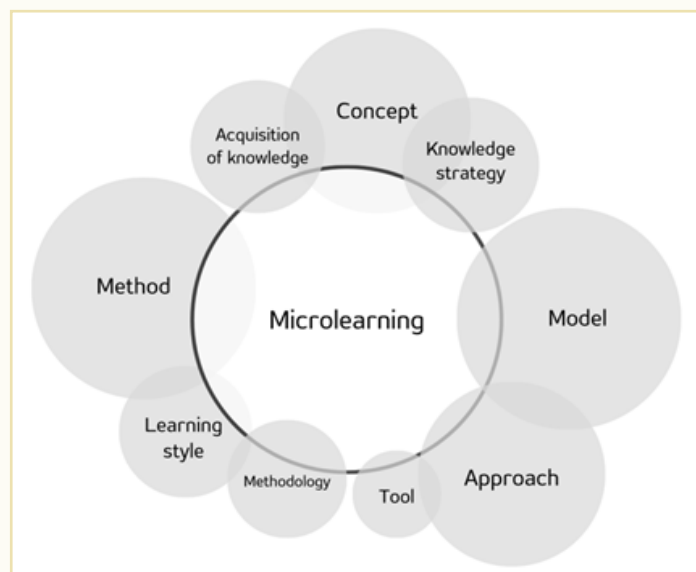


Figure 8 Conceptual framework of Microlearning

Knowledge acquisition. The first dimension deals with microlearning as a specific way of knowledge acquisition, i.e. focusing on the process by which knowledge is obtained. This perspective is exemplified by scholars such as D. Conde-Caballero et al., who define microlearning as an 'acquisition of knowledge or skills in the form of small units [11].' A similar stance is taken by A. M. Al-Zahrani, who defines microlearning as 'gaining knowledge [1].' Some studies, such as that of F. Scherer and M. Scherer, approach microlearning from a neurophysiological standpoint, exploring how our brain processes information and memorises it, with microlearning being seen as an effective learning tool [46]. Furthermore, it is argued by T. Gorham et al. that microlearning can be associated with multiple learning theories [19, p. 553], including behaviorism, cognitivism, constructivism, and connectivism, as per the work of K. Kapp and R. Defelice [23, p. 44].

Terminological plethora. The second dimension of the analysis focuses on the various terminologies used to represent microlearning in the literature, specifically those pertaining to methodology. Although different terms are often used synonymously, they are not always clearly distinguished from one another. For example, T. Gorham et al. refer to microlearning as either a concept or a model, a learning style, or a learning method, yet they fail to make a clear distinction between these notions [19, p. 553]. Similarly, F. L. Alshammari describes microlearning as a concept, a learning style, and a learning method, interchanging these terms without differentiating between them [3, p. 158].

C. Y. Choo and A. S. Abdul Rahim opt for the description 'approach' rather than 'method [10].' On the other hand, O. Chamorro-Atalaya et al. use the terms 'method,' 'approach,' 'methodology,' and 'strategy' synonymously in their study [9]. S. Balasundaram et al. also use these terms without strict differentiation [5]. H. H. Pham et al. use the term 'method' and 'approach' interchangeably in their study, even though 'method' is used more frequently [36].

In the case of R. Horst et al., the researchers apply the term 'microlearning methodology', but they do not clarify what they mean by this term. Based on our analysis, we can assume that the term 'microlearning methodology' implies the same meaning as 'method' or 'approach' in this research [20].

Thus, diverse terminologies are commonly used in the literature on microlearning in language education, with the assumption that they convey the same meaning. Among these terms, 'method' and 'approach' are two of the most frequently used, with almost every study analysed involving one or both of these terms.

Strategic manner. The third dimension of the analysis focuses on the strategic manner of microlearning, specifically in the sense of its technological character and its use as a knowledge strategy. F. L. Alshammari distinguishes it as such, and strategic manner can be seen in the organisational structure of the course provided in his research paper. It proceeds in steps and turns out to be a sequence of actions with each part addressing a specific goal [3, p. 160]. A. M. Al-Zahrani also defines it as an instructional design strategy [1], while A. Rof et al. discuss the ability of microlearning to be organised in the form of a thoroughly planned sequence of lessons, which can ultimately result in a greater learning pathway [42, p. 3]. This dimension highlights the intentionality and planning that goes into the use of microlearning as a pedagogical technique.

Our analysis based on the model proposed by Richards and Rodgers showed that for a method to be considered independent, it needs to include three levels: approach based on certain learning theories, design, and procedure. As per our research, microlearning is influenced by learning theories such as behaviorism, cognitivism, constructivism, and connectivism and is linked to neurophysiological research.

We found that the research on microlearning in the context of language education generally places a greater emphasis on the design and procedural aspects of the concept. By analysing the research works we investigated, we identified several criteria to be considered based on the model of Richards and Rodgers, including objectives, syllabus, types of learning activities and instructional materials at the design level, and the kind of equipment, teaching techniques, tactics, and strategies used at the procedural level (Table 1) [40].

Table 1 presents the objectives of empirical research studies on the implementation of microlearning in the learning process. These objectives illustrate how microlearning addresses a range of problems, highlighting various approaches beyond the microlearning method itself. The implementation of microlearning is primarily designed to enhance learning outcomes through improving student participation, providing complementary course content, promoting self-learning or self-directed learning, and fostering knowledge retention, among other advantages.

The syllabus of the courses we analysed primarily focuses on enhancing the retention and retrieval of course material by providing relevant and complementary content, in accordance with the principles of microlearning. The syllabus is structured to address both the course curriculum and additional related topics in micro-format, allowing students to deepen their understanding and application of the course material.

As shown in Table 1, the learning and teaching activities implemented in microlearning courses can vary depending on the goals of the course. While some courses may focus specifically on improving reading or listening skills, many include communicative activities such as interactive and memorisation games, explanations, discussions, flipped classroom learning activities, games for learning and assessment, feedback activities, and challenges. Each course places a significant emphasis on the assessment process, which often includes quizzes, peer assessment, self-evaluation questions, and other forms of evaluation. The goal is to ensure that the learning outcomes are clear and easily measurable.

In the empirical research covered in Table 1, the majority of microlearning methods involve the use of technology, particularly mobile and computer devices. Researchers implemented microlearning through various platforms, including messengers, videotelephony software, mobile applications, and more. The instructional materials used in each course were typically determined by the devices chosen, with short videos being the most commonly used resource. Other instructional materials used included podcasts, animations, quizzes, audio-clips, images, graphics, and mobile apps.

In this section, we will explore the procedural aspects of microlearning by diving deeper into the techniques used in the empirical research studies covered. The teachers and language instructors in these studies often employed various procedures, including challenging students to guess correct answers, providing multiple-choice questions, initiating discussions, encouraging students to listen to audio clips recorded by peers, and having them predict teachers' comments. Furthermore, students were often provided with instant quizzes for assessment, explanations, and explanatory schemes. These techniques were employed to enhance participation, promote understanding, and encourage active learning in the students. Overall, by utilising these procedures, the researchers were able to effectively integrate microlearning into the curriculum, resulting in an enhanced learning experience for the students.

Ultimately, upon analysing the empirical research papers on microlearning, we have learned that practical studies involve specific syllabus, learning and teaching activity, instructional materials, and learner and teacher roles. At the level of procedure, microlearning involves specific classroom techniques, tactics, and strategies, which are designed with precision and strategic manner of teaching. This integration of microlearning into the curriculum can be considered as an effective way to enhance students' performance. The most important aspect of microlearning is the use of short, well-designed learning activities that are structured, specific, and intentional, delivered asynchronously, and evaluated through assessments. In conclusion, we have established that microlearning is an independent method of learning and teaching that has an emphasis on enhancing retrieval and retention of information, as well as students' engagement and learning outcomes.

Table 1

Examples of empirical research on implementation of microlearning as a learning method

1. Authors: D. Conde-Caballero, C.A. Castillo-Sarmiento, I. Ballesteros-Yáñez, et al.	
Name of the research paper: Microlearning through TikTok in Higher Education. An Evaluation of Uses and Potentials [11]	
Design	Objectives: increasing participation and bridging the gap between teacher and student; improving the acquisition of subject content and competences; developing the processes of evaluation and self-evaluation through exercises presented in the videos; disseminating content which was related to the subject but which went beyond the syllabus, with the intention of encouraging interest and self-learning. Syllabus: content directly related to the course curriculum (additional examples, historical curiosities, examples of assessment, reviews of topics), complementary content related to cross-curricular issues, book recommendations, commentary on current news. Types of learning activities: interactive games, memorization games, explanations Instructional materials: videos from social media platform TikTok
Procedure	Equipment: mobile phones Examples of teaching techniques, tactics and strategies: challenging students to guess, providing multiple-choice questions etc.
2. Authors: R. K. Dixit, P. S. Yalagi, M. A. Nirgude	
Name of the research paper: Breaking the Walls of Classroom through Microlearning: Short Burst of Learning [15]	
Design	Objectives: bridging the gap between traditional classroom teaching and online teaching Syllabus: content of the course curriculum Types of learning activities: flipped classroom learning activities, discussions, assessment through low-stakes quizzes Instructional materials: videos, podcasts, animation (self-reported and technology knowledge)
Procedure	Equipment: mobile devices, Whatsapp group, smart board, Zoom, Google Classroom Examples of teaching techniques, tactics and strategies: sending created videos to the class Whatsapp group, conducting short quizzes, providing discussions when needed, providing additional assignments via Google Classroom etc.

3. Authors: A. M. Al-Zahrani Name of the research paper: Enhancing Postgraduate Students' Learning Outcomes through Flipped Mobile-based Microlearning [1]	
Design	Objectives: empowering students by providing convenient access to educational resources, fostering self-directed learning, increasing engagement, improving knowledge retention, enhancing long-term retention of information Syllabus: content related to the course curriculum Types of learning activities: flipped classroom learning activities, prior-lecture activities (short videos, quizzes, short notes) Instructional materials: short videos, quizzes
Procedure	Equipment: mobile devices (smartphones, tablets) Examples of teaching techniques, tactics and strategies: providing short videos and quizzes outside the official lecture time etc.
4. Authors: C.-Y. Choo, A. S. Abdul Rahim Name of the research paper: Pharmacy students' Perceptions and Performance from a Microlearning-based Virtual Practical in the Elucidation of Absolute Configuration of Drugs [10]	
Design	Objectives: providing 'meaningful learning'; enabling the retrieval and application of information stored in long-term memory Syllabus: content related to the course curriculum Types of learning activities: quizzes, simulations, interactives, games for learning and assessment Instructional materials: short videos, quizzes
Procedure	Equipment: mobile devices, Google Classroom, Google Form Examples of teaching techniques, tactics and strategies: providing short videos for learning and instant quizzes for assessment etc.
5. Authors: T. Gorham, R. Majumdar, H. Ogata Name of the research paper: Analyzing Learner Profiles in a Microlearning App for Training Language Learning Peer Feedback Skills [18]	
Design	Objectives: improving students' peer feedback skills and internal feedback skills Syllabus: content related to the course curriculum Types of learning activities: Communicative Language Teaching-based activities, peer assessment activities, peer corrective feedback activities Instructional materials: audio-clips recorded by students
Procedure	Equipment: mobile devices, the Pebasco app Examples of teaching techniques, tactics and strategies: listening to audio-clips recorded by peers, predicting teachers' comments on mistakes in audios etc.
6. Authors: F. L. ALshammari Name of the research paper: Video-based Microlearning and the Impact on Programming Skills and Technology Acceptance [3]	
Design	Objectives: fostering students' programming skills Syllabus: content related to the course curriculum Types of learning activities: introducing and practical application of concepts, self-evaluation questions Instructional materials: animated videos, images, graphics, quizzes

Procedure	Equipment: computer lab connected to the internet, animated video creation tools platform Vyond, Adobe Photoshop Examples of teaching techniques, tactics and strategies: placing objectives of each lesson at the beginning of each video to help students understand the purpose of the content etc.
7. Authors: S. Balasundaram, J. Mathew, S. Nair Name of the research paper: Microlearning and Learning Performance in Higher Education: Post-Test Control Group Study [5]	
Design	Objectives: enhancing the learning performance, reducing cognitive load Syllabus: content related to the course curriculum Types of learning activities: multiple-choice questions, quizzes and challenges, reading to test understanding (skimming and scanning) Instructional materials: microlearning modules created using the 7taps application
Procedure	Equipment: 7taps application, Google Forms Examples of teaching techniques, tactics and strategies: presenting the content of a research article in the form of points, answering quiz questions, providing responses to the reaction survey
8. Authors: M. V. Samofalova, O. A. Zharina, V. A. Borisenko, V. A. Trofimova Name of the research paper: Adaptive Higher Education of Linguistic Students via 'Flipped Classroom' blended learning [44]	
Design	Objectives: enhancing students' learning performance Syllabus: content related to the course curriculum Types of learning activities: flipped classroom learning activities, discussions, testing, checking and assessing learning outcomes Instructional materials: video lessons, quizzes
Procedure	Equipment: Microsoft Teams, Google Forms, The Moodle platform Examples of teaching techniques, tactics and strategies: watching a video lecture, reading an educational text, studying and explanatory scheme

DISCUSSION

In this study, we tried to analyze what place microlearning occupies in pedagogical discourse, as well as answer the question of whether it is fair to consider microlearning a separate, full-fledged direction of modern pedagogy.

Drawing on Richards and Rogers' model of elements and subelements of a method, we have looked at microlearning from three main perspectives: the approaches (learning theories) that underlie it; from a design perspective, where the components are syllabus, types of learning activities, learning materials, etc.; as well as from the point of view of its procedural aspect, including techniques and tactics for implementing the developed method design in practice. Based on the research of K. Kapp and R. Defelice, microlearning is based on such learning theories as behaviorism, cognitivism, connectivism and constructivism, which in the terminology of Richards and Rogers forms the "approach" aspect. However, in our research, we found that the interchangeable use of the terms "method" and "approach" is quite common in research papers, however, such terminological diversity in relation to microlearning can lead to errors and inaccuracies. In this regard, we consider it more reasonable to distinguish between the concepts of "method" and "approach", as well as "methodology" within the framework of scientific research. Thus, at the moment, microlearning cannot be considered as an approach in the fullness of this concept due to the insufficiency of the theoretical and methodological basis of this phenomenon. It is reasonable to assume that with the development and popularization of microlearning as a multifunctional method, it will become possible to speak of a micro-approach based on the listed learning theories.

Another important point is that in most of the studies we reviewed, microlearning is implemented in practice through various technological means, such as mobile and computer devices, communication platforms, various applications, etc. For example, the growing popularity of the trend of combining microlearning and technology can also be illustrated by the development of specially designed microlearning applications. Thus, Dinger and colleagues presented a special application "QuickLearn", aimed at studying and training vocabulary in the "micro" format [14]. Gorham, referring to T. Hug's position, emphasizes that microlearning is a type of technology-enhanced learning. We can only partially agree with this thesis. On the one hand, microlearning is indeed effectively implemented using various modern technologies, as can be seen from the current case studies. However, most modern teaching methods actively include a digital component, which is why this parameter ceases to be a unique property of any particular method. On the other hand, we consider this formulation to be incorrect, because it assumes that microlearning cannot be implemented without the use of a technological component. A study by C. Y. Choo and A. S. Abdul Rahim found that microlearning was just as effective as face-to-face active learning in their experiment conducted with first-year pharmacy students during the COVID-19 pandemic [10]. In addition, J. Inker et al. also point out that microlearning can be fully implemented offline, despite the fact that it is most often adapted to digital platforms [22].

Our research into the practical implementation of microlearning in the context of foreign language education encountered a significant limitation. Despite available scientific data on the research topic, we struggled to locate adequate research addressing the practical aspects of microlearning in the field of language education. This challenge prevented us from conducting a qualitative analysis of research works purely dedicated to microlearning in the language education field. As a result, we had to broaden our research scope and utilise research papers from other learning fields to obtain relevant insights.

Despite the lack of studies showing microlearning being implemented in language education and without the use of technologies, in our research we have proven that microlearning can rightfully be considered an independent method that meets all the necessary requirements to be called such. In this regard, we see it advisable to designate a deeper study of the methodological aspect of microlearning in language teaching as a vector for further scientific research.

CONCLUSION

In conclusion, microlearning remains a focal point of interest for language instructors and methodologists. Despite this, there has been a significant increase in scientific interest in this emerging phenomenon. Our study found that microlearning is lacking a robust theoretical basis, which is why it has not yet been firmly incorporated into the existing structure of language teaching methodology. As a result, different researchers apply different terms to describe microlearning, including "approach", "method", "methodology", and "learning strategy". In this study, our focus was on exploring how microlearning should be perceived and categorized within the existing framework of foreign language teaching methodology. Based on our analysis, we can conclude that microlearning meets the criteria to be considered an independent method of learning and teaching. This method encompasses all the necessary components to be named a method. Additionally, we identified some terminological differences between Russian and English-speaking discourses, which are important for language educators and researchers to consider when discussing and implementing microlearning.

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