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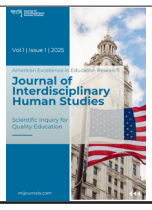

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THE CONCEPT OF "TEACHING TECHNOLOGY" IN FOREIGN-LANGUAGE EDUCATION

Abstract. *This article clarifies the concept of "teaching technology" as applied to foreign-language (English) education. It traces the emergence of educational technology in the mid-twentieth century from behaviourist psychology, Bloom's taxonomy of objectives, and the systems approach to instructional design, and distinguishes the term's two principal readings – the technical means of instruction and the systematic, reproducible design of the teaching process. Drawing on the Russian-language tradition of "pedagogical technology" (Bespalko, Selevko) and on the methodological framework of applied linguistics (Anthony's approach–method–technique), it relates the category of "method" to that of "teaching technology," surveys the principal families of instructional design (communicative, task-based, project-based, cooperative, game- and computer-assisted), and sets out the criteria for selecting a technology in the conditions of Uzbekistan, including alignment with the Common European Framework of Reference for Languages and with learners' age. The article concludes by defining the technology of teaching English as a scientifically grounded, procedurally organised, and reproducible system for designing, conducting, and evaluating the teaching process.*

Keywords: *teaching technology, educational technology, pedagogical technology, foreign-language teaching, method, English language teaching, instructional design, Common European Framework of Reference, communicative approach, task-based learning.*

INTRODUCTION

The word *technology* derives from the Greek roots *techne* (art, craft, skill) and *logos* (word, study), and originally denoted the systematic knowledge of how to make

or do something. For most of its history the term belonged to the sphere of material production, where it described a reproducible sequence of operations transforming raw materials into a finished product with predictable properties. Its migration into the field of education during the second half of the twentieth century reflected a wider aspiration to make teaching more systematic, manageable and reproducible, rather than dependent solely on the intuition and talent of the individual teacher (Saettler, 1990:4-12). It is precisely this aspiration that distinguishes a *technology* of teaching from a mere collection of teaching tips.

The history of educational technology as a distinct field is usually traced to the middle of the twentieth century, when several lines of research converged. One decisive impulse came from the behaviourist psychology of B.F. Skinner, whose work on operant conditioning gave rise to the idea of *programmed instruction* – the division of learning material into small steps, each followed by an immediate response and reinforcement, with the learner advancing at an individual pace. Skinner argued that the careful arrangement of contingencies of reinforcement could make the learning process far more efficient than traditional whole-class teaching (Skinner, 1968:9-28). Although the strictly behaviourist programme was later criticised, its central methodological legacy – the precise specification of objectives, the segmentation of content and the systematic use of feedback – became a permanent component of the technological approach to teaching.

A second impulse came from the work of B. Bloom and his colleagues, whose taxonomy of educational objectives provided a means of formulating learning goals in terms of observable cognitive operations – from knowledge and comprehension through application and analysis to synthesis and evaluation (Bloom, 1956:20). Bloom's subsequent conception of *mastery learning* held that, given sufficient time and well-organised corrective instruction, the great majority of learners can attain a high level of achievement, and that differences in outcomes are largely a function of the quality of instruction rather than of fixed ability (Bloom, 1976:4-16). This optimistic, instructionally-oriented stance is highly congenial to the technological view of teaching and remains influential in the design of competency-based language programmes.

A third line of development was the so-called *systems approach* to instructional design, which models teaching and learning as a system of interrelated components –

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objectives, content, methods, means and evaluation – connected by feedback loops. On this view, the design of instruction proceeds through an orderly cycle: the analysis of needs and the diagnosis of the initial state of the learners; the formulation of measurable objectives; the selection and sequencing of content and activities; the realisation of the process; and, finally, the evaluation of results against the objectives, followed by correction (Gagné et al., 1992:17-31). It is this cyclical, feedback-governed logic that most clearly differentiates a genuine teaching technology from an unsystematic succession of classroom activities, and it underlies the design of the experimental work reported in the third chapter of the present study.

MAIN PART

It is necessary at the outset to distinguish two readings of the phrase that are frequently confused. In the first, narrower reading, "educational technology" refers to the *technical means* (audio and video equipment, computers, interactive boards, mobile applications) employed in instruction – in other words, *technology in education*. In the second, broader and methodologically more significant reading, it denotes a *systematic way of designing, carrying out and evaluating the whole process of teaching and learning* in terms of specific objectives. This second meaning was already fixed in the well-known definition adopted under the auspices of UNESCO, according to which educational technology is a systematic method of planning, applying and assessing the entire process of teaching and learning in the light of specific goals and on the basis of research into human learning and communication (AECT, 1977:1-16). The present work adopts this second, process-oriented understanding as its starting point.

Within the Russian-language pedagogical tradition, which has strongly influenced methodological thought in Uzbekistan, the concept of pedagogical technology received a detailed elaboration. V.P. Bespalko defined pedagogical technology as a project of a certain pedagogical system realised in practice, and insisted that a genuine technology must rest on the diagnostic formulation of learning goals and on the objective control of their attainment (Bespalko, 1989:5-19). G.K. Selevko, in his widely cited survey of modern educational technologies, treated the notion on three interrelated levels – the general-pedagogical, the particular-methodological (subject) level, and the local (modular) level – and proposed an extensive classification of technologies according to

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their philosophical basis, their dominant factor of development and their approach to the learner (Selevko, 1998:14-26).

Generalising these and related positions, a number of essential features of any pedagogical technology may be identified. First, **diagnostic goal-setting**: the aims are formulated so concretely that their achievement can be objectively measured. Second, **the procedural, step-by-step character** of the process: the technology prescribes a definite sequence of actions of the teacher and the learners. Third, **reproducibility**: the technology can in principle be reproduced by another teacher with comparable results. Fourth, **controllability and corrigibility**: the process incorporates feedback, diagnosis and the possibility of timely correction. Fifth, **guaranteed efficiency**: the technology is oriented towards the reliable attainment of a planned result (Klarin, 1994:7-18). It is the simultaneous presence of these features that allows one to speak of a teaching *technology* rather than of an isolated technique or device.

When the concept is transferred to the teaching of foreign languages, it must be coordinated with a conceptual apparatus that had developed independently within applied linguistics. The classical framework here is that proposed by E. Anthony, who distinguished three hierarchically related levels: *approach* – the set of assumptions about the nature of language and language learning; *method* – the overall plan for the orderly presentation of language material, consistent with the chosen approach; and *technique* – the concrete classroom procedure actually used to accomplish an immediate objective (Anthony, 1963:63-67). This model was subsequently revised by J. Richards and T. Rodgers, who replaced Anthony's three terms with the more elaborated trio of *approach – design – procedure*, subsumed under the umbrella term *method*, in order to make explicit such components as objectives, the syllabus model, the roles of learners and teachers, and the role of instructional materials (Richards & Rodgers, 2014:22-35).

The history of foreign-language teaching itself may be read as a succession of dominant methods, each embodying a particular set of assumptions and procedures. The *Grammar-Translation Method*, which prevailed throughout the nineteenth century, treated language learning as the study of grammatical rules and the translation of literary texts, with little attention to oral communication. In reaction against it, the *Direct Method* insisted on the exclusive use of the target language and on the inductive learning of grammar through demonstration and conversation. The mid-twentieth-

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century *Audio-Lingual Method*, grounded in structural linguistics and behaviourist psychology, relied on pattern drills, memorised dialogues and the formation of habits through repetition and reinforcement (Larsen-Freeman & Anderson, 2011:35-52). The recognition that mechanical habit-formation does not by itself produce communicative ability led, from the 1970s onwards, to the *communicative approach*, which redefined the goal of instruction as communicative competence and shifted the focus from the mastery of forms to the use of language for meaningful purposes (Hymes, 1972:269-293). The contemporary, post-method situation, in which teachers draw eclectically and reflectively on a repertoire of techniques rather than adhering to a single prescribed method, makes the technological question – how to organise, instrument and control the process for a given group of learners – all the more pertinent (Kumaravadivelu, 2006:161-184).

Against this background, the relationship between the methodological category of "method" and the technological category of "teaching technology" can be clarified. A method answers primarily the question *what* to teach and on the basis of *what theory* of language and learning; a teaching technology answers, above all, the question *how* the instructional process is to be organised, instrumented and controlled so as to attain a diagnostically defined result. A teaching technology is therefore not opposed to a method but operationalises it: it converts the general principles of an approach and the plan of a method into a managed, reproducible and assessable sequence of teacher and learner actions (Harmer, 2015:56-62). One and the same communicative approach, for instance, may be realised through different concrete technologies – project-based, task-based, game-based or information-and-communication technologies – each with its own procedural logic.

In the contemporary methodological literature on English language teaching, the term "technology" is most often used in connection with several well-established families of instructional design. Among them are the communicative-oriented technologies that grew out of communicative language teaching (Littlewood, 1981:1-17), task-based instruction with its cycle of pre-task, task and language-focus phases (Nunan, 2004:1-18), the technology of cooperative and collaborative learning (Johnson & Johnson, 1999:1-26), project-based learning, and the rapidly developing information-and-communication technologies of language teaching (Dudeney & Hockly, 2007:7-27).

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Each of these may be regarded as a teaching technology in the strict sense, since each prescribes a definite procedure, admits of control and is reproducible.

It is worth characterising these families a little more closely, since they recur throughout the present work. **Task-based language teaching** organises instruction around meaningful tasks – information-gap, opinion-gap and reasoning-gap activities – whose successful completion requires the use of language, and it typically unfolds in three phases: a pre-task phase that introduces the topic and the necessary language, a task cycle in which learners perform the task and report on it, and a language-focus phase in which attention is drawn to the forms that arose (Willis, 1996:52-64). **Cooperative learning** technology structures the class into small heterogeneous groups in which success depends on positive interdependence and individual accountability, and it has been shown to raise both achievement and motivation when its principles are properly observed (Johnson et al., 1994:9-22).

Project-based learning engages learners in an extended, productive activity culminating in a tangible outcome – a poster, a presentation, a wall newspaper, a short film – and integrates several skills and subject areas around a single theme; its strength lies in the authenticity of purpose and the scope it gives for learner initiative (Stoller, 1997:2-18). **Game-based and ludic technologies** exploit the motivating power of play, competition and imagination, and are especially valuable at the secondary stage for sustaining attention and lowering the affective barrier to participation (Wright et al., 2006:1-13). Finally, **information-and-communication technologies**, including computer-assisted language learning, mobile-assisted learning and online collaborative environments, extend the resources of the classroom and offer rich, individualised and interactive input, provided that the technical means are subordinated to clear pedagogical objectives rather than used for their own sake (Chapelle, 2001:27-44).

Whatever the family to which a given technology belongs, its application in school presupposes a definite set of *selection criteria*. The literature converges on several such criteria: the correspondence of the technology to the declared communicative objectives and to the demands of the curriculum and the assessment system; its correspondence to the learners' level of language proficiency; the availability of the necessary time, materials and technical resources; the teacher's own competence in managing the technology; and – of decisive importance for this study – its correspondence to the

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age and the consequent cognitive, emotional and social characteristics of the learners (Richards & Renandya, 2002:19-25). The interplay of these criteria explains why no single technology can be recommended unconditionally and why the design of an age-sensitive technology, rather than the search for a universal method, is the appropriate object of methodological inquiry.

It should also be noted that, in the conditions of Uzbekistan, the choice of teaching technology is increasingly oriented towards the descriptors of the Common European Framework of Reference for Languages, which defines language proficiency in terms of what learners can *do* at successive levels (A1–C2) and thereby supplies a common, action-oriented system of objectives against which technologies can be calibrated (Council of Europe, 2001:24-42). The action-oriented approach of the Framework, in which learners are treated as social agents accomplishing tasks in particular circumstances, is fully consonant with the process-oriented and age-sensitive understanding of teaching technology adopted here.

A point of particular importance for the present research is that the choice and configuration of any teaching technology cannot be made in the abstract. Methodologists are unanimous that the appropriateness of a technology is conditioned by a set of contextual variables, among which the *age of the learners* occupies a central place alongside their level, needs and the institutional setting (Brown, 2015:101-117). The same procedure that is highly effective with adult learners may prove unproductive, or even counter-productive, with adolescents, whose cognitive operations, attention span, motivation and social orientation differ qualitatively from those of adults (Ur, 2012:273-281). For this reason the concept of "teaching technology" adopted in this work is understood not as a fixed, context-free algorithm but as an adaptable system whose parameters – the goals, the content, the types of activity, the forms of interaction and the means of control – are to be tuned to the characteristics of a particular age group.

It is useful, following Selevko, to distinguish three structural parts within any fully described teaching technology. The **conceptual part** sets out the scientific basis of the technology – the theory of language and of learning on which it rests and the leading idea that animates it. The **content part** specifies the goals (general and concrete) and the volume and structure of the material to be mastered. The **procedural part** describes the organisation of the process: the methods and forms of the learners' activity, the methods

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and forms of the teacher's work, the management of the process, and the diagnosis of its results (Selevko, 1998:26-34). A description of an age-sensitive teaching technology must therefore address all three parts: it is not enough to indicate the activities (the procedural part) without specifying for what goals and on what theoretical basis they are deployed.

Finally, the technologisation of teaching should not be misunderstood as the elimination of the teacher's creativity or as the reduction of the lesson to a rigid algorithm. On the contrary, the most authoritative accounts stress that a teaching technology furnishes the teacher with a well-founded structure within which professional judgement, sensitivity to the particular class and improvisation continue to play an indispensable role; the technology guarantees the systematic character and the controllability of the process, while the teacher remains the agent who interprets it and adapts it to the living reality of the classroom (Richards & Lockhart, 1994:1-27). This is especially true at the secondary stage, where the teacher must constantly read and respond to the shifting motivation and emotional state of adolescent learners. The age-sensitive technology developed in this work is accordingly conceived as a flexible framework for the teacher's informed decisions rather than as a substitute for them.

In the domestic methodological tradition, the same orientation is clearly expressed. J. Jalolov, in his fundamental course on the methodology of teaching foreign languages, emphasises that the methods and means of instruction must be selected with strict regard for the learners' age and stage of schooling, and that the secondary stage demands its own combination of techniques distinct both from those used with very young beginners and from those appropriate to senior, pre-professional learners (Jalolov, 2012:41-58). This position is fully consistent with the international literature and provides a national-pedagogical foundation for the age-sensitive understanding of teaching technology developed in the chapters that follow.

A further consideration that links the concept of teaching technology to the theme of age concerns the place of *motivation and affect* in instructional design. Modern accounts of second-language learning assign a central role to affective variables – motivation, self-confidence and the level of anxiety – which act as a kind of filter regulating how much of the available input is actually converted into intake (Krashen, 1982:30-32). A teaching technology that raises anxiety or fails to engage interest will

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therefore be inefficient regardless of the soundness of its linguistic content. Since the strength and the very nature of motivation change markedly with age – the predominantly playful, here-and-now motivation of the young learner giving way, in adolescence, to a motivation increasingly tied to social belonging, peer recognition and the search for personal meaning – the affective dimension of a technology must itself be calibrated to the age group (Dörnyei, 2005:65-89). This is one of the principal reasons why the present work treats age not as a peripheral variable but as a constitutive parameter of teaching technology.

The point may be made concrete by a simple comparison. The technology of pattern-drilling, inherited from the audio-lingual tradition, can be applied mechanically at any age; but whereas with younger children a brisk, song-like drill may be experienced as an enjoyable chant, the same procedure imposed on thirteen- or fourteen-year-old adolescents is liable to be perceived as childish and meaningless, provoking resistance rather than learning. Conversely, a problem-solving project or a debate, which would overtax the cognitive and linguistic resources of a young beginner, can mobilise precisely the emerging capacity for abstract reasoning and the heightened social orientation that characterise the secondary-school learner (Harmer, 2015:82-85). The same surface technique, in other words, has a different pedagogical value depending on the age of those to whom it is applied. It follows that the selection and, still more, the *adaptation* of teaching technologies to the age of the learners is not an optional refinement but a condition of their effectiveness – a thesis that the remaining paragraphs of this chapter set out to substantiate from the side of developmental psychology.

CONCLUSION

To summarise, in the present work the **technology of teaching English** is understood as a scientifically grounded, procedurally organised and reproducible system of designing, carrying out and evaluating the process of teaching the English language, which is oriented towards diagnostically defined communicative goals, provides for feedback and correction, and – crucially – is configured in accordance with the psychological and pedagogical characteristics of the learners' age. This working definition unites the process-oriented understanding of educational technology, the methodological apparatus of foreign-language teaching, and the requirement of

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age-appropriateness, and it serves as the conceptual basis for the analysis of the age characteristics of secondary-school learners undertaken in the next paragraph.

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